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The Journal
OF THE
Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

VOLUME XV—No. 5
WHOLE NUMBER 165

GRAND RAPIDS, MICH., MAY, 1916

YEARLY SUBSCRIPTION, $3.50
SINGLE COPY, 50c

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Office of Publication, 91 Monroe Ave. Grand Rapids, Mich.
Next Annual Meeting, Houghton, 1916

Entered as second-class matter March 12, 1913, at Grand Rapids, Mich., under the Act of March 3, 1879

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Vol. XV GRAND RAPIDS, MICHIGAN, MAY, 1916 No. 5

Original Articles

SCLERAL TREPHINE OPERATION FOR DETACHMENT OF THE RETINA. RESULTS OBTAINED IN TWELVE PATIENTS.

WALTER R. PARKER, B.S., M.D.
DETROIT, MICH.

I shall first give the history of an unpublished case of detachment of the retina treated by trephining the sclera associated with incision in the choroid and retina and follow with a summary of results obtained in sixteen operations.

History.—The patient, S. P. female, aged 80 presented herself for examination in the Ophthalmic Clinic of the University of Michigan March 30, 1915, complaining of gradual loss of vision in the left eye for a period of one year. Family and personal history were negative.

Examination.—Vision, right eye, 6/20; left eye, objects. Tension normal in both eyes. Pupillary reflexes active to direct stimulation in right eye, and to consensual in the left eye; sluggish to direct in the left eye, and consensual in the right. Accommodative reflexes normal in both eyes. Transillumination negative.

Opthalmoscopic Examination.—Right eye beginning nuclear cataract. Many stringy vitreous opacities. By direct examination all the details of the fundus blurred. There is a large physiological excavation, lamina cribosa seen. Surrounding the disk is a whitish gray area which broadens nasally into a cresent nearly a disk diameter wide in its broadest dimension. The blood vessels are somewhat tortuous, the arteries reduced in caliber. Moderate amount of arterial-venous compression.

Left Eye.—The lens is finely granular throughout with several well defined opacities grouped about the posterior pole. There are numerous stringy floating opacities in the vitreous. The disk edges are blurred, large central physiological cup present. Both veins and arteries are small. The retina is detached in two lobes, one nasally limited by a line running from two to six, the other temporarily limited by a line from eleven to six. The two lobes coming in contact at a point two and one-half diameters below the disk margin. The whole detached area is grayish in color and fluctuates on movement of the globe. The mascular region could not be recognized.

Field (Fig. 1) shows almost entire absence of the upper and nasal fields.

Diagnosis.—Partial detachment of retina of unknown origin.

Treatment.—April 22, 1915. Trephine operation for detachment of the retina performed under local anesthesia. The conjunctival and sub-conjunctival tissues were incised down and out and the sclera bared at a point about 8 millimeters from the limbus. A two millimeter button was removed with a Von Hepple's trephine and the choroid and retina incised with a cataract knife. The incision in the choroid was followed by a free discharge of straw-colored fluid estimated at 20 millimeters in quantity. This was followed by a small amount of semi-fluid vitreous. The wound was closed with three stitches.

May 3, 1915. Eleven days after operation. Vision 4/60; tension 22 millimeters.

Vision Fields (Fig. 2) shows some restriction below, but marked improvement nasally.

Ophthalmoscopic Examination.—The lenticular and vitreous opacities same as before operation. The whole retina is edematous and thickened. The wavy appearance has disappeared and the entire fundus is normal in color. The only evidence of a detachment is seen in the periphery below.

July 28, 1915. Three months later. Vision 1/60; tension normal. Lens is more granular with flake-like corticle opacities. The retina is detached below from midway between the disk and the aura-serata, the detached portion being somewhat triangular in shape with base extending from 5 to 8.

While the result shows a marked improvement over the original condition, it is not so good as it was eleven days after the operation.

TECHNIC.

The technic of the operation may be described as follows:

The conjunctiva and underlying tissues are grasped with a pair of forceps at a point corresponding as nearly as possible to the lowest portion of the detached retina and by a single cut with a pair of straight scissors a triangular incision is made down to the sclera. Before losing the grip with the forceps a suture is passed through the apex of the triangular flap. This procedure not only enables the operator to include in the suture all the tissues incised, but affords a ready means of retraction. The

suture can be held by an assistant, or a pair of artery forceps can be applied and so placed that the proper pull will be exerted to give a good view of the field of operation. After the sclera has been bared a 2 millimeters trephine opening is made and the choroid or choroid and retina incised with a cataract knife in such a manner as to avoid injuring the large vessels.

The free escape of subretinal fluid may be followed by a few drops of vitreous. The needle on the suture previously passed through the apex of the flap is now passed through the subconjunctival tissues and the conjunctiva and the wound closed. A single suture on each side completes the operation. The after treatment consists of rest in bed for a period of ten days in such a position as to favor the replacement of the retina.

Fig. 1.

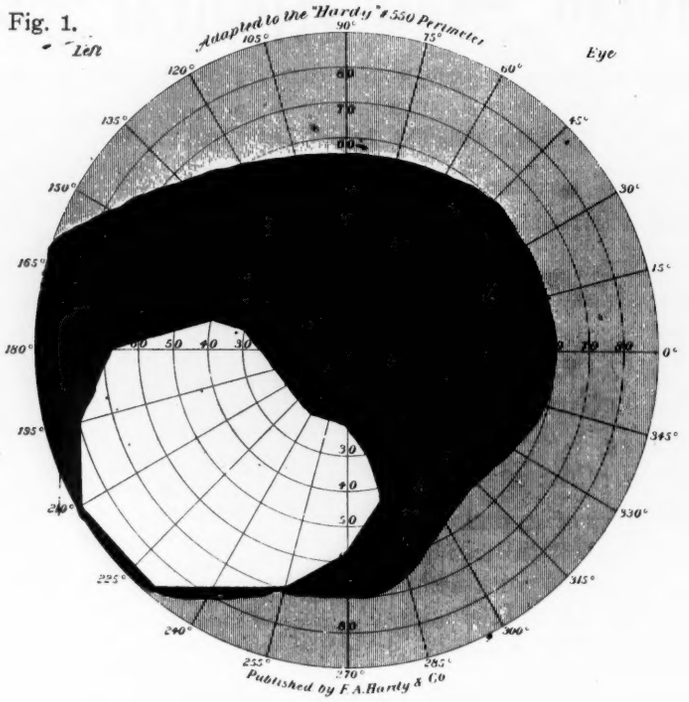

Fig. 2.

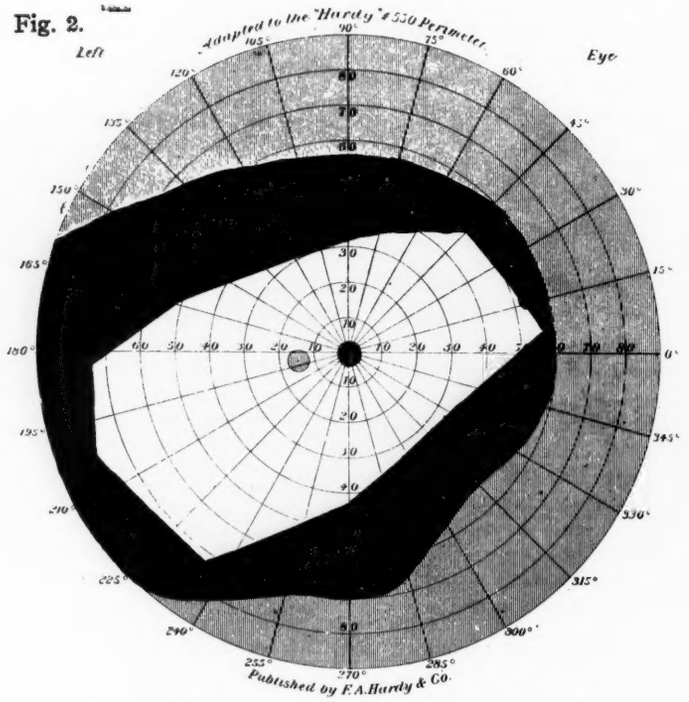

Fig. 1. Field before operation April 22, 1915. Vision—objects.
Fig. 2. Field after operation. May 3, 1915. Vision 4/60.

SUMMARY OF RESULTS.

Total number of cases 12
Total number of operations..... 16

Two cases were trephined twice ond one three times.

VISION.

Improved	Unimproved	Made Worse
5	5	2

FIELD.

Improved	Made Worse
9	3

Eleven cases, the fields of which I show, were reported at the last meeting of the American Medical Association held in San Francisco.

In three cases very good results were obtained. In the two cases in which the vision was made worse, one had fluid vitreous a portion of which was lost during an operation for cataract extraction, the other was a case of high myopia. The field was made worse in three cases. In one the detachment was very extensive and the choroid was not incised. In another there were present contraction bands in the retina, the choroid was detached, and the patient had a four-plus Wassermann with total detachment of the other eye. The third was a case of high myopia.

In conclusion I quote from my last paper on this subject.

"The object of this operative procedure has been to secure an opening in the sclera and choroid which will allow free drainage of the subretinal fluid of a sufficient length of time to permit the retina to become reattached. If the secretory process is dormant, and all the subretinal fluid evacuated at the time of operation, reattachment may occur without edema of the conjunctiva. But if the secretory process is active, or if any amount of the subretinal fluid is left behind, a certain amount of edema must necessarily follow or the retina will again be separated from the choroid and failure result. In each of the cases in which a good result was obtained, the operation was followed by a marked edema which did not entirely disappear until the tenth day.

The procedure seems to be unattended by any danger, either of impairing the integrity of the globe, or in uncomplicated cases, of increasing the extent of the detachment. On theoretical grounds at least, it would seem desirable to drain off the subretinal fluid without injuring the retina. In the cases reported, however, the best results were obtained when the escape of the subretinal fluid was followed by a discharge of a small amount of vitreous.

CASE REPORTS.

CASE 1. Operated May 19, 1913. Uncomplicated detachment of the retina of one year duration. Vision 1. p. Choroid not incised. Result, failure.

CASE 2. Operated July 3, 1913. Detachment, of unknown origin, eight months duration. Vision 2/60. Many vitreous opacities. Choroid not incised. Result, field improved, vision same.

CASE 3. Operated Sept. 23, 1913. Detachment in case of neuro-retinitis, of one year duration. Vision 4/60. Choroid and retina incised. Result, March 29, 1915. Retina restored, vision 6/7.5.

CASE 4. Operated October 28, 1913. Detachment following loss of vitreous at time of cataract extraction one year previously. Vision 1. p. Choroid and retina incised. Result May 29, 1914. Field improved, vision 1/120.

CASE 5. Operated December 4, 1913. Detachment, nine months duration. Vitreous opacities, proliferating retinitis. Result December 22, 1913. Field improved. Vision same, due to proliferating retinitis.

CASE 5. Operated December 12, 1913. Aged 36. Retina and choroid detached. Struck in eye when aged 12. First noticed loss of vision four years ago. Field improved. Vision same.

CASE 7. Operated May 14, 1914. Traumatic detachment three years duration. Large and small vitreous opacities. Result June 11, 1914, field improved from candle Fig. 1 to 10 millimeters, object Fig. 2. Vision from 1. p. to fingers.

Note. Unfavorable case.

CASE 8. O. D. Operated May 19, 1914. Total detachment o. s. Detachment o. d. one year duration, also choroid. Vitreous degenerated. Cyclitic cataract. Wassermann ++++. Trephined twice. Result, failure.

Note. Very unfavorable case.

CASE 9. Operated May 22, 1914. Aged 14. Struck in eye with fragment of cap three years previously. X-ray showed pressure of foreign body back of globe. Organdized bands in vitreous. Retina and choroid detached. Result, failure. Operated three times.

Note. Very unfavorable case.

CASE 11. Operated May 20, 1914. Detachment of twenty-nine days duration. High myopia—13.00. Result, failure.

PUERPERAL ECLAMPSIA: ITS TREATMENT BY COMBINING VENESECTION WITH STROGANOFF'S NARCOSIS.*

GEORGE KAMPERMAN, M.D.

WITH A CASE REPORT.

CLAYTON C. BENJAMIN, M.D.

DETROIT, MICH.

Puerperal eclampsia has long been known as the "disease of theories." We must confess that this is still true. Although we think we have learned a great deal about this disease, yet we have not solved its mysteries to any great extent. A great deal of effort has been directed towards investigating its etiology. Maternal, fetal, and placental origins have been claimed by various workers. But on nothing have they been able to agree. Probably the majority of workers are now inclined to consider the condition as being the result of an autointoxication, due probably to some disturbance of metabolism. Williams thus sums up the various ideas concerning its etiology. But even that is not saying a great deal, and we must agree with Lichtenstein that as yet we know nothing definite concerning its etiology.

In the discussion of this subject it will not be considered within the limits of this paper to discuss the entire subject of eclampsia. Rather we would limit ourselves to a consideration of eclampsia as treated in the Zweifel clinic in Leipzig. Only such phases of etiology as may be necessary to explain certain views held will be included in the discussion. The essayists wish to disclaim at the beginning any originality as to the ideas expressed. Furthermore, we are not here to champion their methods, but simply to relate their experience and results.

The treatment of eclampsia has been the subject of a great deal of discussion. The methods of treatment advocated have been numerous, and many statistics have been compiled to show the advantages of some given method. The advocates of both active and expectant treatment have vied with one another to reduce the mortality accompanying this disease. The advocates of active treatment have resorted to various operative procedures to deliver their eclamptic patients. The trend among these has been from slower methods to quicker deliveries, and procedures more surgical in nature. Everywhere we see experienced men trying various methods only to discard them for something different. Men who have tried expectant treatment will perhaps discard their methods and try some form of active treatment. There are others who have tried active treatment and have discontinued this for some form of expectant treatment. In many instances we see obstetricians, after trying several procedures, go back and revive some older and discarded method. In general, the modern trend in this country is toward active treatment, and especially toward the more rapid methods of delivery, while in Europe the trend seems to be from the various active measures towards the expectant and more conservative methods. In this country we hear very little of any treatment except the active treatment. It is the purpose of this paper to present the other view. It may be considered by some rank heresy to suggest expectant treatment for eclampsia. But it surely cannot be wrong to stop for a moment to consider what the other men are doing. In discussing a subject about which so little is definitely known we must not be too positive that our views are correct and that the opposite views are entirely wrong. The writers have been trained to treat eclampsia by active measures and can claim no great experience with other methods. What will be presented has been gained mostly by personal observation of the methods used and a short visit with men advocating these measures, and from a study of Lichtenstein's report of the cases in the Zweifel clinic.

Lichtenstein has pointed out what he considers a fallacy in our reasoning about eclampsia. We like to direct our treatment of any diseases against its cause, if this be possible. When we have gained more or less satisfactory results with empiric treatment, we are quite inclined to look back and deduct ideas as to etiology from our treatment and its results. In this way Lichtenstein concludes that we have been led into false ideas as to the etiology of eclampsia. Dührssen in 1892 had observed that with rapid delivery one could save more mothers than with expectant treatment as it had been used. Because of this observation rapid delivery, and also early delivery, became the accepted method of treatment of eclampsia. From the improved results thus obtained it was at once deduced that eclampsia was of either fetal or placental origin, since the removal of the fetus and placenta was in many cases followed by a cessation of the convulsions. This was not only a plausible theory, but it had practical clinical evidence to support it.

*Read at the Forty-ninth Annual Meeting of the Michigan State Medical Society, held at Lansing, Michigan, September 10-11, 1914.

At this stage von Winkel announced his ideas concerning the effect of fetal death on eclampsia. He was of the opinion that fetal death exerted a favorable influence on the subsequent course of an eclampsia. If the fetus died during the course of the disease, it was thought to be a material factor in aiding the recovery. This supported fully the deductions made from their experience with operative delivery concerning the fetal and perhaps the placental origin of eclampsia.

Von Winkel's idea was allowed to stand without question for several years, but was finally challenged by several observers, principally by Lamsbach and Lichtenstein. These observers, after carefully collecting all published cases failed to find any support for von Winkel's contention. On the contrary they found many more cases where convulsions began after fetal death than where fetal death caused a favorable effect on the disease.

Whatever we believe as to the role the fetus plays in causing eclampsia must necessarily affect our ideas as to the treatment of this disease. As was stated by Peterson a year ago at this meeting there can be no doubt that pregnancy is in some way related to eclampsia, for we never see eclampsia in a non-pregnant woman. But just how this influence is exerted is unknown. A great deal of skepticism has developed as to whether the toxin is actually developed or elaborated by the fetus. There are on record numerous cases of "intercurrent eclampsia" where the patient recovers from the eclampsia and later on is delivered normally, the delivery at times occurring a couple of weeks after the recovery from the eclampsia. From such cases it has been judged that the fetus and placenta are not essentially the cause of eclampsia. Furthermore many patients have convulsions after the delivery of the fetus, and a rather large number even develop convulsions some time after the fetus has been born. The explanation usually given for these cases is that the mother was so profoundly toxic before delivery that the convulsions continued or developed in spite of the delivery. But this does not explain why the convulsion should be delayed for twelve or even more hours. There are also on record cases where eclampsia has developed in the absence of the fetus—in cases of complete hydatidiform mole. Here one could hardly ascribe a fetal origin.

Lichtenstein believes certain errors have crept into our statistics for active treatment of eclampsia, which tend to give undue credit to the delivery as a curative measure. Cases of postpartum eclampsia are not included with early deliveries, and the high mortality of postpartum eclampsia is thus subtracted from the mortality following early delivery. According to his findings postpartum eclampsia has a decidedly higher mortality than is usually ascribed to it. His contention is that these cases should be included with those delivered early. Then again early delivery is credited with the cure of certain cases which were practically cured before delivery (cases of "intercurrent eclampsia.") Also cases in which convulsions continued after delivery until venesection was resorted to, have been considered as cured by the delivery. It is claimed that in this way the good results of delivery have been overestimated.

A great deal of work has been done to estimate the amount of blood lost by a patient during her delivery. All labors are naturally not attended by the same amount of bleeding. Lichtenstein in a series of 320 cases found a variation of from 100 to 1800 cubic centimeters. The amount of blood lost during an operative delivery was much greater on an average than that lost during spontaneous delivery. Among the spontaneous births only two of the series of 320 cases lost more than 300 cubic centimeters, while three-fourths of all the operated patients lost more than that amount. It is also noted that patients with postpartum eclampsia had in most cases lost very little blood during the preceding delivery. Furthermore, it was observed that these patients had in most cases had a spontaneous delivery.

Ahlfeld found the average loss of blood during delivery to be about 400 cubic centimeters, Glockner found it to be about 350 cubic centimeters, while Lichtenstein in his series of eclamptics estimated it to be 490 cubic centimeters. The amount of blood lost in any series will be influenced by the number of operative deliveries. For the sake of comparison Lichtenstein takes 400 cubic centimeters as an average and finds that of the spontaneous deliveries only 4 per cent. lost this amount of blood, while 52 per cent. of the operated cases lost at least 400 cubic centimeters.

The question arises whether the good results obtained by operative methods were due to the actual emptying of the uterus or whether the improvement observed might not in large measure be due to the increased loss of blood.

In Lichtenstein's series of 400 cases of eclampsia, 40 per cent. had no convulsions after delivery, while 60 per cent. still continued in their convulsive attacks. If delivery is so essen-

tial, why is it, he asks, that more than half of the patients continue in convulsions?

Aside from the cases of eclampsia recovering without delivery (intercurrent eclampsia), Lichtenstein's series shows a large number of cases in which convulsions ceased considerable time before delivery. This raises the query as to whether the emptying of the uterus is essential to the successful treatment of eclampsia. Lichtenstein is very skeptical as to whether there is as great an advantage in early delivery as the statistics seem to indicate. He considers that cases of postpartum eclampsia should be included among the early delivered, as the delivery occurred even before the convulsions began. He asserts that if emptying the uterus had such a favorable influence on eclampsia one would expect that postpartum eclampsia would not occur.

In Lichtenstein's report the relation of the amount of blood lost to the cessation of convulsions is reported in 315 cases. In 121 of these cases convulsions ceased after delivery, and in 194 they continued. Among the latter were thirty-nine cases of postpartum eclampsia. The loss of blood is tabulated as follows:

Loss of blood in eclamptic patients:

	Loss of blood	Per patient
Cessation of convulsions (121)	75,960 c.c.	620 c.c.
Continuation of convulsions (155) (Exclusive p.p. eclampsia)	73,140 c.c.	470 c.c.
Continuation of convulsions (194) (Inclusive p.p. eclampsia)	79,400 c.c.	410 c.c.

The total loss of blood in thirty-three postpartum eclamptics was 6,260 cubic centimeters, or 160 cubic centimeters per patient. The total loss of blood of all cases regardless of cessation of convulsions was 155,360 cubic centimeters, or 490 cubic centimeters per patient. In comparing the groups it is evident that the average loss of blood in all cases where convulsions ceased, is larger than in any other group, and 130 cubic centimeters more than the average loss of blood in the entire series. Also in cases where convulsions ceased each patient had lost 50 per cent. more blood than those in whom convulsions did not cease (620 c. c.—410 c. c.) Every patient in whom there was a cessation of convulsions had lost about four times as much blood as the patients with postpartum eclampsia.

At the Leipzig clinic various methods of treatment had been used. Expectant and conservative treatment in the way of aiding elimination had been tried and discarded in 1895 in favor of operative methods. A lessening of the mortality was at once observed, the mortality dropping from 32 to 15 per cent. Zweifel was not yet convinced that this favorable result was due to the removal of the fetus. It did not explain satisfactorily the occurrence of postpartum eclampsia. Von Winkel had had good results with the use of narcotics and diaphoretics, and more recently Stroganoff had obtained such good results with the use of narcotics alone. These and other considerations led to the conclusion that although with operative delivery the mortality had been reduced, yet the delivery itself was not the essential part of the treatment and the good results could not be ascribed to this alone. They were of the opinion that the excessive loss of blood had been a more important factor in reducing the mortality than the actual emptying of the uterus.

In April 1911, Lichtenstein, with the consent of Professor Zweifel, resolved to discontinue active methods in favor of expectant obstetrical treatment in the treatment of eclampsia. The results obtained in several hundred cases have since been published.

The treatment adopted is a combination of the old time venesection and a modified Stroganoff's narcosis. After the admission of the patient into the hospital a rapid but careful examination is made, including temperature and pulse observation, lung examination, urine analysis, and blood pressure determination. The patient is given an enema and venesection is immediately performed, 500 cubic centimeters of blood being the quantity removed, usually from the median basilic vein. Following this the sedative treatment as used by Stroganoff is at once begun and consists of the use of morphine subcutaneously and chloral hydrate per rectum. The morphine is given in one-quarter grain doses, and the chloral hydrate in thirty grain doses. The intervals can be determined from the following scheme:

Sedative Treatment (Stroganoff).

(a) Morphine Sulphate	¼ gr.
(b) One hour after (a), Chloral hydrate,	30 grs.
(c) Three hours after (a) Morphine Sulphate,	¼ gr.
(d) Seven hours after (a) Chloral hydrate,	30 grs.
(e) Thirteen hours after (a), Chloral hydrate,	22 grs.
(f) Twenty-one hrs. after (a), Chloral hydrate,	22 grs.

One will observe that the interval between the various doses is always two hours longer than the interval before the preceding dose. The morphine is given hypodermatically and the chloral hydrate is dissolved in 300 cubic centimeters of milk or salt solution and given per rectum. Sweating is not resorted to. If there is an obstetrical indication for delivery

this is done at once, but otherwise a waiting policy is adopted. The convulsions are not considered an indication for delivery. The patient is never delivered if the cervix is not dilated. In case of vomiting or continued convulsions, gastric lavage is performed through a nasal catheter, and after the lavage a liter of acid solution (lemonade) is left in the stomach. Subcutaneously a solution containing ½ per cent. of sodium bicarbonate and ½ per cent. sodium chloride is given in severe cases; or Ringer's solution (NaCl .6%, KCl .4%, CaCl-2 .26%, NaHCO-3 .03%) is given intravenously in amounts of 500 cubic centimeters. The patient is catheterized frequently and a qualitative and quantitative analysis is made of each sample. If convulsions continue a second venesection of 350 cubic centimeters and a third of 250 cubic centimeters is made. In case anesthesia is required, ether and not chloroform is used. To protect the patient from all external stimuli the room is darkened and the patient's ears are plugged with cotton.

During the first year and a half (April 1911, November 1912) eighty-two cases of eclampsia were treated. Of these eighty-two mothers five died, a mortality of 6.09 per cent. One death was due to peritonitis following an attempt at forceps before admission to the clinic. Two deaths followed pneumonia. At the time of the report sixty-two patients had been treated consecutively without a maternal death.

The eighty-two mothers gave birth to sixty-three children. Of these 13 died, a fetal mortality of 20.6 per cent. If we consider all fetal deaths regardless of cause, and do not deduct those not viable, we find thirty-two fetal deaths following eighty-two deliveries, a mortality of 39.9 per cent. (This allows one fetus for each delivery. The number of multiple pregnancies cannot be definitely determined from the report. Counting twins would lower the percentage of mortality).

Rather interesting is the occurrence of "intercurrent eclampsia." In some cases the patients recover entirely from the eclampsia and do not go into labor at time. Later on they have their confinement normally. This is what Lichtenstein has termed "intercurrent eclampsia." The eclampsia occurs during the pregnancy and runs its course like an intercurrent disease. In some cases the interval between the last eclamptic attack and the occurrence has been a couple of weeks—nineteen days in one case. The lower limit is set arbitrarily—if twelve hours elapse between the last convulsion and the birth of the child it is classed as intercurrent. With this method of treatment about half (47 per cent.) of the patients recover from the convulsions before the birth of the child. Lichtenstein asserts that the cure of these would have been credited to the delivery if active treatment had been employed and thus undue credit would have been given to the delivery. The occurrence of intercurrent eclampsia convinces him that delivery is not essential in the treatment of eclampsia. In the series of thirty-two cases of intercurrent eclampsia there were nineteen living children, the fetal mortality here being 40 per cent.

In nearly all cases treated the urine showed evidence of improvement very early during the course of treatment. The decrease in the amount of albumen was usually rapid and in several cases the urine was albumen free at the time of the delivery. It is advised that a qualitative and quantitative analysis be made of each specimen in order to judge as to the course of the disease, and it is considered that frequent urine analyses are as important here as temperature observations are in the course of an infectious disease. The improvement as shown in the urine usually occurs so early that Lichtenstein considers it due to the venesection rather than to the sedative used.

The return to consciousness usually comes gradually and many patients recover complete consciousness before the birth of the child.

The effect on the further occurrence of convulsions was such that 58.8 per cent. of the series had no more convulsions after the treatment was instituted.

Because of the expectant obstetrical treatment, spontaneous deliveries are common, 66.3 per cent. of the patients having normal spontaneous confinements. It is pointed out as an advantage in that these cases can be treated conservatively from the obstetrical standpoint.

The figures given thus far are those obtained in the Zweifel clinic in Leipzig. A series of cases treated by non active measures has also been collected from various sources. The entire series amounts to 329 cases with forty deaths—mortality of 12.16 per cent. A large number of these cases were not treated by a combination of venesection and Stroganoff's method, but by either one of these methods alone. By combining the two methods it is thought that the results will be an improvement over those obtained by either method alone. It is thought that the benefit derived from venesection is due to

its lowering the blood pressure and to the removal of toxic matters.

CASE REPORTS.

The patient Mrs. L. M., aged 26 years, Polish, Para. V, was seized with a convulsion at 2 a. m., June 6, 1914. Just prior to the convulsion she had complained of severe epigastric pain. Following the convulsion she remained unconscious. When first seen at 4 a. m. she was having the fifth convulsion. No physician had been consulted during the pregnancy. A catheterized sample of urine was obtained and on boiling it turned solid. A quarter grain of morphine sulphate was given hypodermatically and after consultation the patient was removed to the Solvey General Hospital.

Examination showed a very fleshy patient, stout build, with marked general edema. She was in deep coma. Heart examination was negative. Pulse rate was 70, respiration 22, temperature 100 per axilla. Lung examination showed numerous noisy rales. Blood pressure was 130 millimeters. (Mercer.) The urine besides heavy albumen showed numerous casts in the uncentrifuged specimens. The patient was eight months pregnant. There were no labor pains. Fetus lay in O. L. A. position. Fetal heart rate was 150. When admitted into the hospital she had had at least six convulsions.

The treatment instituted was a combination of venesection and Stroganoff's narcosis. Five hundred cubic centimeters of blood was taken from the left median basilic vein. Following this morphine sulphate in quarter grain doses hypodermatically and chloral hydrate in thirty grain doses per rectum was given according to Stroganoff's method. Her ears were stopped with cotton to prevent external stimuli and the room was darkened and kept quiet. The blood pressure dropped to 110 millimeters. (Mercer.)

After instituting this treatment there were no more convulsions. Eight hours later she had recovered sufficiently from the coma to be able to swallow calomel tablets, and she began to take a considerable amount of fluid. After twenty-four hours she had recovered complete consciousness. She complained of intense headache. The fetal heart was plainly heard, rate 150. The edema had diminished to a considerable extent. The urine which was scant during the first twelve hours after beginning treatment, increased in amount very rapidly after the first twelve hours.

On the second day the blood pressure went up to 140 millimeters. It remained at that point until labor, during which it went as high as 160 millimeters. Following the labor it again dropped to 140 millimeters, and then gradually went down.

The urine which boiled solid on admission to the hospital, cleared up rapidly and at the end of twenty-four hours contained about one-third volume of albumen, and hyaline and granular casts. Five days later, at the time of confinment, the urine contained only a faint trace of albumen and very few casts.

Two days after beginning treament the fetal heart, which prior to this had been very distinct, was no longer heard, and the patient complained of lack of fetal movements.

Labor occurred five days after her admission into the hospital. During these five days there were no convulsions and the patient improved in all respects every day. After six hours of labor pains she was delivered spontaneously. The fetus was still-born and of about eight months development.

The post partum convalescence was uneventful. The patient left the hospital on the eleventh day, and at this time the urine was free from albumen and casts. She was seen September 1, 1914, and was in good health.

In the preparation of this paper we wish to acknowledge having consulted very freely the writings of Lichtenstein on this subject.

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OBESITY: ITS RELATED PATHOLOGY.*

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Popular prejudice presumes that the taking on of fat is an indication of health. Rounded contour is more agreeable to the eye than angularity. People with increasing adiposis, therefore, usually are discouraged by friends and relatives from making any effort toward reduction. Physicians are to some extent responsible for this attitude. Not being interested, except in rare instances, they have not considered obesity work a specialty worthy of their attention, and have left the treatment largely in the hands of charlatans and quacks, contenting themselves with general directions concerning food and exercise, and, furthermore, like the laity, have not been sufficiently discriminating, when results were bad, to recognize that the method of reduction, not reduction itself, was wrong, and too often in their own thought have placed undue emphasis upon the cosmetic aspects of obesity rather than upon its relation to health.

The taking on of fat in excess is an indication of failing function, if not of actual disease process. Allow me to quote from one of the health letters issued by the Life Extension Institute in the interests of health and longevity.

"To Our Subscribers:

How many people, after the age of 35, have a conformation of body that is in accord with proper ideals of health and symmetry? The average individual, as age progresses, gains weight until he reaches old age, when the weight decreases.

*Read before the Menominee County Medical Society, Feb., 1916.

This movement of weight is so universal that it has been accepted as normal or physiological, whereas it is not normal and is the result of disease producing influences.

The standards for weight at various ages and heights have been established by life insurance experience, but these standards which show an increase in weight as age advances by no means reflect the standard of health and efficiency. They merely indicate the average condition of people accepted for life insurance, whose death rate, while covered by life premiums, is yet far above that obtaining among the people of the best physical type.

With most people the increase of weight is an index of waning physical activity causing a physical deterioration, which is masked by our custom of wearing clothes. The average individual at the age of 40, when time alone cannot be responsible for such physical change, is indeed a pitiable contrast with the average individual of 25. Already there is a sagging of the figure, there are fatty accumulations and a 'corporation' is usually a permanent and growing bodily institution.

Now, why should we slavishly settle down to accept these bodily disfigurements and burdens, and the handicaps that accompany them? Why not try for the best condition instead of being content with the common lot."

Further on in the letter attention is called to the fact that it is only within recent years that the significance of overweight has been appreciated, and a table is given based on the experience of forty-three American Life Insurance Companies.

AGE THIRTY.

Women		Men	
5 ft.	120 lbs.	5 ft. 3	133 lbs.
5-1	122 lbs.	5-4	136 lbs.
5-2	124 lbs.	5-5	140 lbs.
5-3	127 lbs.	5-6	144 lbs.
5-4	131 lbs.	5-7	148 lbs.
5-5	134 lbs.	5-8	152 lbs.
5-6	138 lbs.	5-9	156 lbs.
5-7	142 lbs.	5-10	161 lbs.
5-8	146 lbs.	5-11	166 lbs.
5-9	150 lbs.	6 ft.	172 lbs.
5-10	154 lbs.	6-1	178 lbs.
		6-2	184 lbs.
		6-3	190 lbs.
		6-4	196 lbs.

These tables form the working data concerning overweight risks for every one of our safe insurance companies, and are based on a careful study of the records of the forty-three leading insurance companies of America as reported by the Medico-Acturial Committee.

The following is an exact quotation from the printed instructions of one of our most reliable insurance companies to its agents, and accurately reflects the attitude of all.

"The applicant who is of good weight possesses in the mind of the agent an additional value as an insurance risk, and it is true that the average overweight gives the appearance, if anything, of being better than the average weight risk. Despite appearance, it has been conclusively demonstrated that the overweight is not as good as the average weight risk, therefore, overweight cases should be most carefully investigated before submitting final applications. No definite rule can be given relative to the question of overweight, for it involves many factors. Age possesses a very great value by reason of the fact that after 45 overweight risks are decidedly poor."

TABLE OF OVERWEIGHTS SHOWING VARIATIONS IN DEATH RATE FROM STANDARD

Ages	+5 to +10 lbs.		+15 to +20 lbs.		+25 to +45 lbs.		+50 to +80 lbs.	
	Death Rate Below Standard	D. R. Above Stand.	D. R. Below Stand.	D. R. Above Stand.	D. R. Below Stand.	D. R. Above Stand.	D. R. Below Stand.	D. R. Above Stand.
20 - 24	4%		4%			1%		3%
25 - 29	7		10			12		17
30 - 34	1		14			19		34
35 - 39	0			1%		31		55
40 - 44	0			10		40		75
45 - 49		3½%		9		31		51
50 - 56		2		21		24		49
57 - 62		2		25		12		38

"From these figures it is plain," the same authority observes, "that the usual gain in weight with advancing years is not an advantage, but a handicap. Before the age of 35 overweight is well borne, but after 35 it is associated with an increasing high death rate, and at middle life it becomes a real menace, the highest death rate of all being among those from 40 to 44, who are 50 to 80 pounds over weight." It is desirable to maintain the weight at about the average for the age of 30, as a study of death records accords to this weight the most favorable mortality. The following table shows the average weight for the various heights at 30 years of age.

Much more evidence is at hand, based on experience, establishing the untoward influence of obesity on health and longevity. Many pages of the Medico-Acturial report are devoted to the discussion of this subject, but repetition is only tiresome. Moreover, from the physician's stand-

point, generalities, no matter how plausible, even convincing, are not satisfying. A study of particular conditions is essential to a perfect understanding of the relation of obesity to health.

Obesity may be caused; (1) by conditions which themselves menace life and health, (2) or it may be the accompaniment of developing pathology, the two originating in a common cause. In either case *the obesity is the danger signal* which nature flies, unfortunately, too often, disregarded, the patient harboring the delusion that health is improving, (3) As obesity increases it both aggravates the cause of its genesis and gives rise to further deranged function and real pathology. Every case, therefore, of incipient obesity should be examined to discover the defects, that serious consequences may be forestalled; and every case of fully developed obesity should be reduced and normal functions restored as far as possible, that the patient may be rescued from a precarious situation.

As our subject is too extensive to make possible a detailed exposition within the limits of one paper, we will discuss very briefly the underlying conditions of which obesity is frequently the result or accompaniment, and we must bear in mind that although the individual factors are mentioned separately, they are interdependent, caused and aggravated one by another.

A popular fallacy to be guarded against is that, when obesity is a family trait, it is natural and both hopeless as to cure, and without sinister significance. That obesity is familial, simply means that the underlying defect is a family inheritance, and while such are more difficult to reduce, it is all the more imperative and all the more incumbent upon us, knowing the weakness, to help the patient guard against its consequences.

Neuroses frequently cause obesity. Adipolysis is inhibited through interference with the function of the vagus and sympathetic. This form of obesity most often results from emotion, shock or trauma, intoxications or infections, as after typhoid fever, puerperal infection, la grippe, intestinal intoxications, and disturbance or defect of the glands of internal secretion.

Deficiency of these glandular secretions may arise from a variety of causes, and is exemplified when obesity develops after the menopause, oophorectomy, or castration, lack of secretion of genital glands being the causal factor; in myxoedema, or after total extirpation of the thyroid, when thyroid secretion is deficient or lacking; in Dercums disease, adiposis dolorosa, from disorders of the pituitary. In diseases from disordered pituitary function, nervous derangement enters into the etiology, as the pituitary, though containing glandular elements, is the seat of nerve centers which control activities affecting metabolism. In fatty diabetes, there are faulty or deficient internal secretions of pancreas or liver, or both, existing either as primary failure, or secondary to perverted function or incompetency of other glands.

Diabetes and obesity are such boon companions that, if for no other reason, obesity should be shunned for the company it keeps. A depressed glycogenic function results in both. If this function be of low grade, though at first within normal limits, living conditions favoring, obesity may ensue, which in turn further depresses the function and increases the obesity; later, digestive glycosuria appears, many cases terminating in diabetes. Let it be noted, too, that this depressed glycogenic function affects the obese subject just as it does the diabetic, increasing the craving for food, especially for carbohydrate, and at the same time lessening power for muscular activity, automatically augmenting the conditions of too much food and too little exercise. It is a matter of record, vouched for by Heckel, that diabetes is accompanied by obesity in 90 per cent. of the cases. He also makes the statement that "obesity and diabetes are almost pathological equivalents," and that, "both have a common origin."

Oxidation process depressed below requirements, and below the level of food intake, may be a factor in obesity, a consequence of obesity, and a reason why obesity tends to perpetuate itself. It has been established that oxidation bears a certain relation to the surface area, so that decrease of the surface decreases the amount of oxidation. Now we know, mathematically, that large bodies have less surface proportionately than small ones, therefore, there is proportionately less oxidation the larger one grows, while the demand for food is increased.

Here enters again the influences of impaired glycogenic function. Observations have established that oxidation and glycogen function rise and fall together, so that the proportionately less surface area of the obese individual is accompanied by a proportionately less glycogen formation. The lowered glycogen forming power fails to keep pace with bodily requirements, so that the patient is less and less able to endure energetic physical exertion, and the essential stimulus of exercise upon exidation becomes well nigh lost. As oxidation is an ex-

pression of the activity of metabolism, the deep seated nature of any depression of the function and its bearing upon our subject is apparent.

Too little exercise and too much food are fruitful causes of obesity. They are not, however, we are beginning to realize, the only causes, and often are secondary, the result of abnormal physical conditions which must be remedied before admonition to better living habits can be of value to the patient. And we should bear in mind that to establish these better habits, the first step is to put the patient in a condition that makes self control and self regulation possible, to accomplish which is doing much more than can be measured by the scales.

At this point I wish to call attention to the fact that deposits of fat in and around the muscles often cause slow, difficult, even painful muscular action, and contribute to the inactivity of the obese. Such patients frequently say they are "stiff and rheumatic," though this form of so called "rheumatism" disappears with the obesity.

The portal circulation is an important element in obesity. If wrong habits of eating and drinking are indulged, the amount of blood in the portal vein and its tributaries is excessive, the stream moves slowly, and pressure is increased. Whether one overeats or not, after obesity is established, the fatty liver and weak heart, the sedentary habit which most obese find a necessity, and the flabby abdominal muscles which accompany, operate effectually to produce this portal stasis, thus accounting for the fact that fat tends to accumulate increasingly in the abdomen.

During even this review of conditions related to cause, one must be impressed by the repeated observation of one fact, viz: that obesity itself is a potent cause of further obesity, aggravating itself, increasing its own causes, and multiplying its ill effects.

These effects are insidious, deep-seated and extensive.

We must bear in mind that while fat is being deposited in the subcutaneous tissue where it often is observed with complacency, it is accumulating also in the deep tissues of the body, in and around vital organs, and that in these locations it is very stable and extremely difficult to dislodge.

Hirschfelder, in his "Diseases of the Heart and Aorta," says:

"As an individual puts on body fat, more fat is deposited in the pericardium, spreads into myocardium, penerating into it between the larger strands of muscle, and finally settling beneath the endocardium, especially about the bases of the papillary muscles."

The heart apparently is enlarged by the deposition of fat, but as another authority, K. Hirsch states: "the increase in size and weight of the heart may conceal an actual atrophy of the heart muscle, and a corresponding weakness." At the same time obesity greatly increases the demands upon the heart. The organ itself, heavy with its burden of fat, offers more weight to be moved at each systole, while the total volume of the blood to be propelled increases with the bulk of the individual. The heart is crippled further by the fact that the fatty accumulations of the abdomen, portal congestion, and enlarged liver operate together to push upward the diaphragm, crowding the heart so that its axis approaches the transverse. Frey and Krehl have proven by experimentation that the action of the heart is greatly hampered by this unnatural position. Often there is no visible apex impulse. The heart complex is so characteristic and common that it has been named by Romberg, "Cardiac insufficiency of fat people." Can we wonder that the obese so readily succumb to acute diseases? Dilatation of superficial veins, so often seen in the obese, as for example, the Bardolphian butterfly across nose and cheeks should call attention to the weakening heart. Frequent epistaxis in a patient whose weight has increased considerably also suggests fatty heart.

The enfeebled condition of the heart induces a congestion of the lesser circulation which accounts for our fat patients' predisposition to bronchitis, asthma, emphysema and pulmonary oedema; the severity of pneumonia; and the rapidly fatal termination of tuberculosis when attacking the obese.

Arteiosclerosis usually accompanies obesity and adds to the heart load. The analysis of the relation is still under discussion. Certain underlying causes operate to the production of both conditions, and in addition, obesity itself contributes to the developing arteriosclerosis. Imperfect metabolism, which attends upon all advanced cases of obesity, and many moderate ones, results in the accumulation in the blood of toxic wastes, which in turn give rise to chronic toxemia, a potent factor in arteriosclerosis. Early in the development of obesity the arterial pressure is lowered on account of the weakened heart and the portal engorgement; after the entrance of the factor of auto-intoxica-

tion this condition is changed to the pre-sclerotic hypertension.

The arteriosclerosis and high blood pressure of the obese make them peculiarly subject to apoplexy. Heckel, who says that he has "come to consider that any one who is developing fat is also developing arteriosclerosis," also states that he has "often been able to predict apoplectic seizures in the obese with high blood pressure, even of young people," and cites several cases. Von Noorden, an authority on obesity, reports as a result of his studies that 18 per cent. of the obese die of apoplexy, a startling figure when compared with general mortality statistics. In the registration area of the U. S. (as reported by the Federal Census Bureau) the mortality from cerebral hemorrhage in people over 30 years of age averaged but 6.75 per cent. during the five years from 1909 to 1913. In the German Empire, which possibly furnishes a fairer comparison, mortality from cerebral hemorrhage from 1907 to 1911 for the same ages is even lower—but 6.16 per cent. Cut off the first ten years, when cerebral hemorrhage is less likely to occur, and in the U. S. from 1909 to 1913 we note that mortality from cerebral hemorrhage after the age of 40 is but 8 per cent. As compared with Von Noorden's 18 per cent. these figures have even greater significance when we consider that from 40 to 50 years of age occurs the highest mortality in the obese, before the high mortality from cerebral hemorrhage is due. In fact, including all cases, obese and otherwise, the mortality for cerebral hemorrhage between the ages of 40 and 50, (based on reports for the years above cited) is less than 4 per cent., suggesting that few people die of apoplexy between the ages of 40 and 50, who are not obese.

CEREBRAL HEMORRHAGE.

	Age	Mortality
Obese	All ages	18%
U. S.	30 years and over	6.75%
German Empire	30 years and over	6.16%
U. S.	40 years and over	8%
U. S.	40 to 50	4%

Fat collects early around the kidney, interfering by pressure with its circulation, while fatty infiltration of the kidney itself more seriously threatens its integrity. Albumen in the urine of the obese often appears from slight cause, even in early cases, e. g. from fatigue or a common cold, slight infections or intoxications, either endogenous or exogenous, while the obese are much more disposed than others to chronic nephritis. The relation of arteriosclerosis to the kidney lesion is apparent.

The renal debility of the obese results in a crippled elimination, and loads the blood with imperfectly reduced poisonous products of tissue metabolism, the resulting toxemia causing tachycardis, sick headaches, skin eruptions, neuralgias, neuritis, irritability, nervousness, even neurasthenia, all outgrowths of the imperfect elimination. Osler points out that the "daily renal output of the obese may be diminished one-half, while the amount of food ingested is plus. The portal stasis, too, contributes to the kidney insufficiency and disease, causing primarily, delayed and deficient secretion of urine.

The liver is disturbed profoundly by obesity. It becomes loaded and infiltrated with fat earlier than any other organ, and it is on account of fat in the liver, that glycogen function so soon begins to fail. As the hepatic adiposity increases, other functions are impaired, digestive disturbance ensue, often constipation results, or constipation and diarrhea alternate; acholia is present intermittently, as shown by occasional white stools; urobilin may appear at times in the urine, giving it the characteristic color and reaction; and cholemia frequently is present; late, steatosis of the liver may supervene. The existing stasis of the pertal circulation further impairs liver function and may lead even to the destruction of the liver cells. Cirrhosis has developed. This extreme is rare, however. Functional disorders and their accompaniments are the common results, most frequently gout, diabetes, gallstones and cholecystitis.

The occurrence of gallstones and cholecystitis in the obese is astonishingly frequent. There is good authority for the statement that one in every two or three fat women develop gallstones at some time in their lives. Perhaps the cases are not all recognized, but the statement is based on autopsies. The mechanical causes favoring intestinal infection and stagnation of bile in gall bladder are to be found in the flabby abdominal muscles, the impeded diaphragm and the sedentary habits, while the frequent hepatism and cholemia of the obese must favor hemotagenous infections. Recognition of these facts leads us to appreciate that the frequency of gallstones in the obese is not accidental.

The pancreas of the obese is always fatty, a condition which contributes substantially toward diabetes, and the blood vessels of the fatty pancreas are easily ruptured, causing colic, vomiting and pancreatitis.

Varicosities and hemorrhoids so evidently are the natural results of the venous and portal

stasis that the proneness of the obese to these diseases needs no further explanation. Other results of the general venous and portal engorgement are splenomegaly, abdominal tympanitis, enteritis, and intestinal and other hemorrhages, even appendicitis, which, it has been observed, is especially common among the obese.

The somnolence of the obese may be of gastro-intestinal origin, or from venous engorgement of the brain, or from endocrine incompetency, but from whatever cause, it contributes to further muscular inactivity, and therefore augments the adiposis.

The portal congestion, together with the pressure on the pelvic organs by masses of fat may produce disturbances of menstruation, congested uterus, even displacement, and altered function or congestion of ovary. The obesity associated with deficient internal secretions frequently is accompanied by derangements of the sexual organs. Fuchs makes the statements that "One out of every four or five obese women are sterile." Our observation may not equal this figure, but that the obese are frequently sterile cannot be gainsaid.

Another matter of observation is the dystocia of the obese. Williams speaks of tardy labor as "often associated with imperfect development of the musculature," and calls attention to the fact that this condition "is relatively common in corpulent individuals."

DeLee points out that "The combination of infantile pelvis and obesity are not uncommon." In this association the obesity and deformity may be independent, but, on the other hand, they may originate from a common cause, active even during the stage of development.

While we grant that no one case of obesity will develop all the pathology and disturbed function just reviewed, it is to be appreciated that the obese individual is threatened with several or many of the dangers enumerated, and the imperfect vital functions of such patients unfit them for extra strain, for fatiguing, exhausting work, for operation which may become imperative, for accident which may occur, for resisting infections and withstanding long illness, in short, for the exigencies of physical existence to which every one is liable.

And further I wish to emphasize that fatalities are daily occurring, the foundation cause of which, though unrecognized, should have been discovered in time to have averted calamity, and would have been discovered had the obesity signal been considered by patient and physician with adequate gravity.

MEDICAL TEACHING IN DETROIT AT PRESENT AND IN THE FUTURE.*

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DETROIT, MICH.

In conversing with many citizens of the State of Michigan upon the advisability of medical teaching being given in the City of Detroit, I have been struck with the wide variation of opinions held by the people interviewed. Most every man of education and thought, has decided views upon the subject, be he business man, lawyer, minister, doctor or of whatever calling, and the views of all are at decided variance. Let it also be stated that opinions of members of the medical profession alone, are uniformly as varied as opinions gleaned from men of other callings.

Because of this wide difference of opinion and the strong beliefs held by many, apparently without proper consideration on the subject, it seems to me suitable to present as concisely as possible the arguments for and against the continuance of medical teaching in Detroit, so that the subject may be opened for thoughtful and perhaps fruitful discussion.

It is not my purpose to mention even slightly the past histories of the various medical colleges in the city or the state; each and every one, whether living or dead, has served or is serving its purpose. The vital question now is whether the instruction of prospective practitioners of the medical sciences is of benefit to the three quarters of a million or more citizens that form what is known as Greater Detroit. If it can be shown that a first-class medical college is essential to a "Bigger, Better, Detroit," then each and every employer and citizen wishes it. If it is not an essential factor in the progress of this ever growing metropolis, then let us not waste time, labor and money in the effort. This is not a matter that concerns the medical profession of the city alone. It is of far more importance to the citizens of Detroit themselves. They are dependent upon the knowledge of the man who advises them in their desire to protect themselves and their families from disease; or in case misfortune comes, in the integrity and ability of the physician whose advise they seek. If the teaching of the medical sciences in Detroit furnishes a higher average of knowledge to the medical servants of the city, each and every citizen desires its continuance.

First let us consider the arguments against the teaching of the medical sciences in Detroit. There are many who believe that such teaching

*Read before Detroit Academy of Medicinefi March, 1916.

is unnecessary, and the argument which proves their opinion is one that is weighty and forceful. Briefly it is as follows: When the State of Michigan decided in the year 1847, that its highest institution of learning should be located in Ann Arbor, it naturally designated that city as the proper place for the training of future physicians. The University does not belong to the city of Ann Arbor, it belongs to the State of Michigan and the city of Detroit pays more for its upkeep than any other portion of the entire state. This being so, the citizens of Detroit should make use of the teaching facilities of those whom they help to pay, and it is wasteful and useless to attempt to perform like functions for themselves. Why then should the medical profession of Detroit desire a college and what useful service would such a college perform?

The above when considered without analysis is a forceful argument, let us add one more which contains more of truth, even though it be not as forceful. The present tendency is to limit the number of institutions teaching the medical sciences and to raise the standards of all. By this means the number of graduates permitted to practice medicine would be fewer, but they will be better equipped, better educated and consequently more competent to serve the public intelligently. It will make it more difficult for the dishonest and unprepared man to enter this particular calling and, as a result, the entire medical profession will be elevated to a higher level. As stated above, this can best be accomplished by limiting the number of institutions permitted to teach medicine and surgery, and one good institution is sufficient for the needs of any state. This being so, and the State of Michigan having one of the best institutions for this purpose in the country located at its University, what is the need of another institution for medical instruction in Detroit, less than forty miles away.

This apparently is a sound and logical argument, and unless a careful consideration of the local needs of Detroit is made, one would agree with it most heartily.

Let us next turn our attention to the reasons for the continuance of medical teaching in Detroit. The argument frequently given by many medical men for the need of it is as follows:

Detroit is a city with a population of over 700,000. It is growing rapidly every day. The amount of material thus furnished for the clinical teaching of medicine is tremendous and consequently should be made use of. This to the layman sounds like a rather heartless and coldblooded proposition, that the sickness and misfortunes of the needy should be used for the instruction of medical students. Let us pause a minute to disillusion such believers. In reality the best thing that can happen to a man of the needy poor class unfortunate enough to require medical attention is for him to seek the aid of the teaching clinic. If he seeks the private services of the average active practitioner and is unable to give recompense for the time and labor given, he may or may not receive proper examination, depending upon the moral qualifications of the individual he sees. Only too frequently, after a brief statement of his complaints and without any proper examination at all, is he given a bottle of something or other and let go at that.

To illustrate this further, let us consider a concrete example, one that is met with only too frequently in actual hospital practice.

John Jones has a pain in his stomach on Tuesday. When he first notices it he is working in the machine shop of the A. B. C. plant where he receives $2.50 a day for his labors. He does not stop work on account of the pain, because he has a wife and four children at home and the money for that day's work is needed for actual living expenses. However, when he gets home that evening the pain is much worse, so his wife decides that he must see a doctor. Doctor X lives in the same block, but he charges two dollars for an examination, while Doctor Y who lives three blocks away charges one. Two dollars and a half a day hardly makes ends meet, so Doctor Y is interviewed. He asks about the pain and also if the bowels have moved. No they have not moved today. A dose of salts is given and a dollar changes hands, and John Jones is told to come back tomorrow if the pain is not better. That night the pain gets very bad and then suddenly almost ceases, but John Jones is not so well. Next day he has no more money, so some friends take him to the hospital and he is operated upon for a ruptured appendix. The abdominal cavity is filled with pus and a tube must be inserted. Possibly in four or five weeks he leaves the hospital, but it is at least two or three months before he can work again and then he cannot do the heavy work of the machine shop.

Now let us see what would have happened to John Jones had he gone to a teaching clinic. Possibly he would first be interviewed by one of those dreaded students and a history of a sudden pain in the abdomen taken. Then the instructor in charge of the students would have had John Jones remove his clothes. He would

have felt the abdomen and observed how rigid and sore it was and he would have had the students under his charge do the same. Next student A would have examined the urine, taken the temperature, also the pulse while student B was doing a blood examination. The report would be made and checked up by the physician in charge—urine negative, pulse 120, temperature 102, blood examination hemoglobin 100 per cent., total reds 5,400,000 total whites 12,000—differential count, polymorphonuclear 85 per cent., large mononuclear 5 per cent., small mononuclear 10 per cent. The instructor would then explain the meaning of these findings to the students. He would tell them that those blood findings showed a serious inflammation and students A, B, and C would all be instructed to examine the heart and lungs to see if there was any reason why an anesthetic should not be given. This being confirmed by the instructor, John Jones and the students are sent to the surgeon in charge of teaching clinics, and the students see a badly inflamed but unbroken appendix removed. John Jones is in the hospital one week and back at work as good as ever in two. Has John Jones suffered from being used as teaching material?

This is just one example illustrating an acute condition. Such cases do not happen as frequently as those of the John Joneses who have more slowly progressive conditions. The poor man with just a little distress in his stomach after eating, where Dr. Y can find nothing, even by careful examination with the methods given above, is kept encouraged with various medicines until the cancer growing within has become so widely spread that nothing but death can result.

Perhaps Doctor Y has suggested that an X-ray examination would show the trouble, but an X-ray examination costs from ten to twenty-five dollars and John Jones cannot afford that at $2.50 per day, when he has a wife and four children to support. Apropos of this, let me pause to remark that Harper Hospital has at present a yearly gift of two thousand dollars all of which is spent exclusively for the X-ray plates used in the examination of cases of the John Joneses whose incomes do not permit them to pay, and this alone prolongs the lives of many to useful citizenship. In addition let me add that this hospital spends from $60,000 to $75,000 every year upon the needy poor used for clinical teaching.

It surely is not necessary to digress further to show that the less fortunately fixed members of society composing the citizenship of Detroit are most decidedly benefited because of the teaching of medicine in the City of Detroit.

Let us next turn our attention to the members of the medical profession themselves and see wherein they receive benefit. It is a well recognized fact that in any line of endeavor competition is the most efficient stimulus to progress. The practice of medicine in former ages was termed an art. At present it is recognized as being composed of many sciences, and each year finds it more scientific and consequently more exact. It is impossible for the busy practicing physician to delve through the vast amount of literature printed each and every week upon the new truths elicited in these many and varied sciences, to separate the chaff from the wheat, or even to keep up to time in the knowledge of improvements that are of worth in the care of the sick. It is for this purpose that we have medical meetings so that the knowledge of the new benefits may be imparted, their value discussed, and their ultimate worth be known. I have frequently heard it stated that a medical meeting was beyond the understanding of many men of other professions, that all that happened according to their views was a series of disagreements and fights between the various speakers. Most assuredly we disagree—most assuredly we fight—I would not give a cent for any medical meeting that was unproductive of warm discussion and the reason is evident. In the discussion of new scientific facts, those who are acquainted and have experimented with the same have approached the subject from different angles, and different points of scientific importance have impressed them, one may deem a thing of value, another may deem it dangerous, and it is well to know and understand both sides before adopting either view.

Let me give a practical illustration. Fifteen years ago there were many capable medical men who claimed that diphtheria antitoxin was absolutely specific and the most efficient remedy known. Other equally capable men would state that while it was of benefit, it was very dangerous to use, that they hesitated to use it because of this danger and cited as proof several cases of sudden death after its administration. Such disagreements were naturally detrimental to the opinion held by others of the knowledge of medical men, and yet both sides were right. Then further labors showed that the danger from the use of antitoxin was not from the antitoxin *per se*, but from the vehicle in which it was carried and still further researches enabled those who now prepare this most efficient

of remedies to eliminate the danger, until at present all capable medical men are unanimous in their knowledge of its efficiency. Thus, because of the disagreements and fights of medical men, an efficient and safe remedy has been evolved.

This seeming digression has been made simply to substantiate the following statement, which is that the man who attends medical meetings and listens to, or perhaps takes part in, these discussions is better equipped and more competent to attend to the needs of those who make use of his services than the man who remains always with his practice and has no desire to keep abreast in the knowledge of the latest truths which science is constantly mastering. Again this in turn leads up to the statement that the man who is constantly instructing others in the knowledge of any one subject must keep himself up to the very latest in all that is known about that subject. If he does not do so he is inefficient as a teacher, his own students will soon discover this and he must be ultimately superseded by someone else of more progressiveness. Such being the case in a city as large as Detroit where there are many, not only capable of, but anxious to perform the same office, furnishes the best possible stimulus for knowledge and progress and consequently raises the standard of the medical profession locally and makes more efficient practitioners for the citizens of Detroit.

Let it be understood that all of this is true provided—and this is an important proviso—that medical teaching in Detroit is carried on only on its highest plane. The local college has progressed in the past five years probably more rapidly than any other medical institution of teaching in the country but the majority of those connected with it realize that this progress must continue and that there is still much to be improved. The graduates of this college form a goodly proportion of the medical advisers of Detroit and their opportunities for learning should be unexcelled. To properly train a student becomes more and more expensive every year, and Detroit must be willing to meet this expense, for it would be poor economy to save on the teaching and turn out an unskilled and inefficient product to give advice in matters perhaps of life and death to our own citizens.

There is one school in a certain southern state whose graduates are not permitted to practice in their own state because of the rating given this institution, owing to their lack of proper facilities for instruction—surely a most deplorable and disgraceful condition—and yet their graduates are allowed to pose as intelligent physicians in other states less progressive in their restrictions. So if this paper proves an appeal for the continuation of medical instruction in the city of Detroit, it is so, only for the highest and most efficient class of instruction that can possibly be given. As stated before the local college has improved but it must improve even more to be an asset to the citizens of this metropolis.

Lastly let us turn our attention to another class of citizens of Detroit and see wherein they are benefited by the continuance of medical instruction locally. I refer to the employers of labor, to those capitalists whose generosity must be appealed to in order to continue this most needed industry of properly equipping the future medical man. No institution of medical teaching can be self supporting. It must be heavily endowed; for the expense of instruction is ever increasing and yet instruction should be available to rich and poor alike, since frequently the man who has but little for the necessities of life, gives the most for the benefit of mankind in the end.

So let us turn our attention to our local capitalists and see wherein their benefit comes. If they choose to take proper advantage of the benefits of local teaching their returns will be the greatest. Not only will the physicians who render service to themselves and their families be better equipped, but they will receive actual financial benefit from the better medical services rendered their employees.

In order to illuminate this last statement more satisfactorily let us consider a few specific examples. The "Workingmen's Compensation Act" has now been in effect sufficiently long so that many employers have formed decided opinions as to its justice or injustice as the case may be. The average employer is perfectly willing that anyone suffering injury while engaged in his duties should receive recompense for the same, but it is not just or right that he should be forced to give recompense for conditions for which he is in no wise responsible, and, only too frequently, he is forced to do so, because of lack of knowledge of the medical man upon whose opinion he relies.

Recently my attention has been called to two cases in which employees of a large local concern were injured slightly while at work. The injuries resulted in persistent leg ulcers that refused to heal. This condition had existed six weeks in one case and longer in the other. Both men were suffering from syphilis acquired years before, a condition that their employment

had nothing to do with at all, yet both were being continued upon the pay roll of the concern that employed them and being furnished medical attention by that concern's physicians who did not ascertain the true nature of their malady. Most assuredly their system of medical attention was inefficient and must have been a source of decided expense much greater than its actual cost.

From the same concern I recently saw a case of tuberculosis of the ankle following injury while at work. Of necessity this will be a long and protracted illness and of considerable expense to that concern. The accident was responsible for the tuberculosis of the ankle without a doubt, yet it was not responsible for the pulmonary tuberculosis that the employee had when first engaged. This case presents possibilities for an expensive law-suit. It is almost a certainty that the firm must pay some compensation, and also the wages of another employee while this man is laid off—yet who is responsible? The answer is simple. The organization of their medical department is inefficient and their medical advisers are incompetent. For their own protection every employee should be examined medically before being engaged. It should be known whether he suffers from Bright's disease, diabetes, cancer, syphilis or tuberculosis, whether he is a drinker or has a rupture, whether certain forms of labor will cause him harm or not. The time is fast approaching when the employer of labor will realize that in order to protect his industry and to elevate the efficiency of his employees, the latter should be subjected to as rigorous an examination as that exacted by any life insurance company before being accepted.

Let me give just one more actual illustration to impress this point. Last spring one of Detroit's successful manufacturing plants employing a large number of men had several laid off because they were suffering from typhoid fever. The number of cases of this disease amongst the employees of that plant was so out of properion to others in the city that it attracted the attention of the Board of Health. It was found that the plant obtained its water from two sources, one the city water supply, the other from a private pump of the plant on their own grounds. Water from the latter was found to yield typhoid bacilli, that from the city supply was not contaminated at that time. There were about twenty men laid off because of this epidemic, and let us say their average illness was six weeks. In round numbers the firm lost 700 days labor of skilled workmanship and was forced to break in and train green men to take their places. Certainly there must have been considerable monetary loss, all of which would have been prevented had this concern been possessed of the advice of a man properly trained in the medical sciences.

Other examples could be given but I think enough has been said to convince the employer of labor that it will be a saving to him if he lends his aid to a higher standing of the local medical men. Some of them employ competent medical advice now—more do not—but the continuation of medical teaching in Detroit is essential for the needs of all.

This being agreed upon, how had the continuation best be carried out. There are two ways in which this is possible at the present time. The first is the building up and developing of the Detroit College of Medicine and Surgery until it is excelled by none. This is an expensive method but absolutely essential if no other equally efficient can be found.

The second is to terminate the existence of the local institution and have the University make use of the material available in the present and future acceptable institutions of the city. In order to best bring this about the entire teaching staff locally would resign, the question of renewed teaching would be placed entirely in the hands of the Regents of the State University and our only desire would be that their actions should always be such as to increase the ability and knowledge of local practitioners whether they be students or not.

Strange to state however, this question of the University taking charge of medical teaching in Detroit has been a much discussed question for almost half a century and the chief opposition to it has always arisen in Ann Arbor. The opinions of some of those who influence the progress of medical instruction at the State University seem to be rather provincial. They regard the Medical Department as being in and of Ann Arbor and fail to consider this institution in its broader sense with responsibilities to the state at large.

Then again it must be stated that the Medical Department of our State Institution has ceased to progress in the teaching of the medical sciences with the same degree of rapidity that it was possessed of in former years.

There was a time when its graduates, because of their training were called to the chairs of important branches of medical teaching in the best institutions of the country, both east and west. Now other institutions are training their students equally well or even better, with the

consequent result that fewer graduates of the University of Michigan are being selected for important teaching positions in our better institutions.

This is a fact that cannot fail to produce chagrin to the graduates of the University, since, when all is said, the best institution of learning is the one that produces the largest number of skilled and recognized teachers from amongst its graduates.

It is interesting in this connection to briefly review the factors which at one time placed our State University first, above all others, in the production of medical teachers. These are self evident and a knowledge of them will show in what direction efforts must be turned to keep this institution in the first rank.

In the early days the teaching of medicine was devoted entirely to clinical work. Then came the era of rapid advance in scientific knowledge, and the laboratory side of medical instruction received chief prominence. Those in charge of medical instruction at our State University at that time were possessed of sufficient foresight to see the importance of such instruction and this, together with the fact that they were compelled to lay especial stress upon this form of teaching because of their lack of clinical facilities in Ann Arbor, proved most fortunate for the Medical Department. As a consequence it was actually the first medical school to produce well trained and thoroughly equipped laboratory men and as a result it ranked first amongst all such institutions in this country. These well equipped men were called to fill chairs in other institutions many of which were situated in large centers of population which furnished tremendous clinical facilities. The inevitable happened and, as many of these institutions were possessed of unlimited means their courses in laboratory instruction advanced rapidly until they were the equals of any other. This again placed them upon an equal footing with the University with the added advantage of far larger clinical facilities.

I feel sure that those in control at the University believe that their clinical facilities should be much increased, indeed the rightfully agitated demand for a larger hospital and an increased number of beds in Ann Arbor proves this. Such a step should be taken in any case, but even a two million dollar hospital, with every possible advantage that it may bring, can never aid the University in obtaining certain classes of medical cases that are absolutely essential for the proper teaching of clinical medicine. Among these might be mentioned acute surgical conditions such as result from injury, which the young graduate is most likely to be summoned to attend and, more important, the acute infectious diseases such as diphtheria, small-pox, measles, etc. which obviously cannot be transported by rail for the sole purpose of being used for clinical material.

The tendency and further advance in medical teaching from now on will be closer corelation between the laboratory and the clinical departments and for the proper advancement of medical teaching, availability of a large amount of clinical material of every sort will be essential.

It might be respectfully suggested that the addition of the clinical material furnished through the control of medical teaching in a city with a population of three quarters of a million might be of aid in the better equipment of the students at our State University.

Be that as it may, either the University must realize its duties to the state and supervise not only the teaching of medicine throughout the state, but also the further instruction of practising physicians; or else there must be a better and a richer institution in Detroit itself.

The continuance of local instruction is absolutely essential to a "Bigger, Better Detroit."

THERAPEUTIC INDICATIONS IN APPENDICITIS.*

H. B. KNAPP, M.D.
IONIA, MICH.

In dealing with appendicitis one must recognize that this disease often presents a rapidly changing aspect depending upon the type of the infecting organism, the reaction of the host to the toxines, and the duration of time elapsed since the inflammatory process began. To meet successfully these varying conditions, to operate or not to operate, and if operation is performed to do it at a time best calculated to serve the interests of the patient; to do enough and not too much of an operation; these are some of the phases of this question which tax the skill and judgment, and make this subject one of interest to every practitioner.

Early operation has universally proven to be the safest procedure, but in order to operate in the early hours of appendicitis, it is not alone necessary to make a diagnosis. One more factor must enter into the plan of treatment, viz: the consent of the patient.

*Read before the Ionia County Medical Society, December, 1915.

The average layman is not trained to weigh facts as they are known and as they are presented to him by his physician. He is inclined to believe the tell-tale stories poured into his ears by his numerous friends who are ever ready to give advice. It is one thing to say operate in the first twenty-four hours, and quite another thing to always get the consent of the patient to do the operation in the pre-suppuration stage of the disease.

The delay in operating may not always be due to the refusal of the family or the patient to give consent, but to other reasons, the most common of which is tardy diagnosis. If appendicitis symptoms were always classical then the late diagnosis excuse would disappear.

The wide range of excursion of the cecum, described by Wilms, affords an opportunity for error if appendicitis be diagnosed on the location of the point of tenderness at a given point. Transposition of the viscera as reported by Schrup, and from the Mayo Clinic, must be kept in mind.

The base of appendix, according to Lanz, (1) lies at the junction of the middle with the outer third of a line between the two anterior superior spines of the illia on the right side, and any incision to expose the appendix, according to Murphy, should be made through this point. This does not preclude the fact of pain being referred to McBurney's point, which is "third in order and importance in our quintet of symptoms of appendicitis—pain, nausea, and vomiting, local sensitiveness, elevation of temperature, and leucocytosis." (2).

In the chronic cases of appendicitis the X-ray has become an important help in diagnosis. This however hinges upon whether the appendix has become obliterated by chronic inflammation (2). J. T. Case and other roentgenologists have studied the size and length of the lumen; the presence or absence of constrictions or kinks, adhesions, the question of drainage (emptying time) of the appendix, the relation of the visible appendix shadow to a point of pain on pressure, the position of the appendix, whether retrocecal, procecal, etc. Case reports being able to study the bismuth filled appendix in one out of three patients examined, and he believes that the patulous appendix exists in about this ratio in patients exhibiting gastro-intestinal symptoms.

The entrance of bismuth into the appendix is held by Case, Imboden, (6) and others to be pathological, but if this diminuitive organ is able to empty itself of the bismuth mixed cecal contents within twenty-four hours its motor function can be said to be normal. But with bismuth remaining in the appendix indefinitely there is reason to suspect this condition as being potentially appendicitis.

But to come to an acute case of appendicitis in the early hours of the disease refusing operation the question naturally arises, how can this case be made a good operative risk should the signs of abscess appear some days later?

No hard and fast rules can be formulated to say when it is safe to wait. The ideal time in which to interfere is before the appendix has ruptured, or the infection has extended to the surrounding structures. Operation at this time is of but little greater risk than if done during the interval period. The Ochsner treatment takes care of most cases of appendicitis, but the responsibility of holding a case for a favorable outcome is great, and this responsibility should never be taken in the light of present day statistics.

Those who have had the experience of seeing the family physician advise against operation in the early hours of this disease, when the operation could be performed without risk, and then have seen the patient die of peritonitis in a few days, or have seen the watchful waiting policy pursued until the abscess becomes obvious to the eye of the physician, and then an operation becomes a serious undertaking because of the danger of the formation of fresh abscesses, thrombo-phlebitis, sub-hepatic abscesses, metastatic parotitis, etc.; or, those who have seen two or three mild attacks followed by a fatal attack, will have little tendency to procrastinate and wait for abscess formation with its attendant risks when they can be avoided.

Ochsner (4) report a mortality of 1.9 per cent in 255 cases of acute appendicitis without abscess; 3.4 per cent. in 177 cases with abscess; and 30 per cent. in those with general peritonitis.

E. M. Stanton (5) reports on the pathological examination of 539 appendices removed during or within ten days following an attack of appendicitis, classifying the data with reference to the symptoms and the day of the disease. In every case of acute appendicitis on the first day there was definite blocking of the lumen of the organ by a sero-fibrinous exudate. There was a deposit of lymph on the peritoneal surface, and at the end of twenty-four hours there was microscopic evidence of gangrene. The second day is characterized by an intense leucocytic infiltration of all the coats, accompanied by ulceration of the mucosa, and a well marked fibrinopurulent peritoneal exudate, accom-

panied by an increase of the areas of gangrene. On the third day the process of destruction reaches its maximum, and in the nonmalignant cases there are evidences of repair. In the fourth, fifth, and sixth days in the less severe cases the repair progresses rapidly, while in the more severe cases there are evidences of true abscess formation, but not until the sixth or seventh day are the walls sufficiently strong to permit manipulations incident to packing off uninvolved intestine preparatory to drainage.

Stanton agrees with the Ochsner principle of treatment that purgatives aggravate the inflammatory condition and their administration is followed by perforation and peritonitis. The earlier the peritoneum is put at rest and food and purgatives withheld the more localized the condition will be.

From this report it is seen that appendicitis naturally divides itself into quite definite clinical and pathological stages and affords some basis for urging a careful analysis of the clinical findings in any given case.

FOUR CLINICAL STAGES IN APPENDICITIS.

1. From the first to the twenty-fourth hour, during the ascending stage of inflammation before pus has formed or the inflammatory process has extended to the surrounding organs. Operation in this stage is done with little risk.

2. From the twenty-fourth hour to the fifth or sixth day while the inflammatory process is limited by but delicate adhesions, and during the time when the body is getting up resistance to the toxines. This is the most dangerous period to offer operative help to patients with this disease. Most of the mortality takes place during this stage, and unless unusual reasons present themselves the operation should be deferred. If the twenty-four hour period has passed then fasting, the Fowler position, the hot hip and leg bath or pack, combined with the ice bag to the lower abdomen, and perhaps some morphine to induce rest and quiet and favor the formation of adhesions, this will carry the case along to the sixth or seventh day. During this stage the perforated or gangrenous appendix is the nucleous of an abscess, at first small but with a localized peritonitis. Our whole effort should be directed toward keeping this process localized, and wait for nature to wall off the abscess by adhesions firm enough to make the removal of the case to the hospital safe, and to tide the patient over into the next stage. If, however, a high temperature and rapid pulse with severe symptoms of intoxication persist, operation in this stage must be undertaken. The operation done at this time and with these symptoms present must be of the simplest order. An incision about an inch inside the anterior superior spine of the illium, hugging close the parietal peritoneum, so that the lateral wall of the abdomen forms one wall of the sinus, and drainage established, is all that is necessary. No effort should be made to find the focus of infection or to remove the appendix, and unless it presents itself into the wound it should be left. To open the abdomen and protect the intestines in the usual approved way from pus contamination, and then ever so carefully dig a gangrenous appendix from its septic bed, tie and cut it off, opens such additional lymph spaces to the entrance of toxic material that the already overloaded system is unable to cope with the condition and the results are too often disastrous. To curette a septic uterine cavity is analagous to the often overdone appendicitis operation performed according to textbook technic regardless of the ability of the patient to withstand the shock.

Dr. Murphy (5) tersely says:

> "I feel convinced that the great mortality which has been reported in operations in the second stage and under clinical conditions mentioned above, in a measure, has been due to excessive manipulation, sponging, flushing, adhesion separating and prolonged operation. The deaths in these cases of acute infection are due to the depression resulting from a sudden absorption of an overwhelming dose of bacteria and their products. This absorption is favored by the manipulations mentioned."

If it were an abscess in any other part of the body due to infection or a foreign body we would naturally open the abscess first, letting down the pus tension and thereby the toxic resorption, and when a more favorable time presented itself remove the foreign body if one were present. Principles of surgery would therefore seem to say that drainage should be the first and only object of operative intervention at this stage of the disease.

3. From the sixth day onward. If at this time the temperature is falling, the pulse slower, and the local and general symptoms are abating the operation should be deferred, the case becoming an interval one. But if the temperature, tenderness, distension and pulse rate gradually increases, and the signs of abscess persist, operation is the only alternative. All that has been said relative to the preceding stage applies at this time except the case is not so urgent. The abscess has had time to wall itself off by firm adhesions, and the body adjust itself to the toxines.

The first object then is the evacuation of the pus. The matter of finding the appendix and

removing it becomes a secondary consideration. Primary removal of the appendix is only indicated when it can be done easily, or when it becomes necessary for a recurring abscess.

The general rule in surgery to open an abscess at the place of pointing does not always hold good in abscess in this region. By far the safest plan here is to make an exploratory incision at the right border of the rectus or in the middle line and explore the condition of the cecal region in order to determine that the abscess has not already ruptured into the free peritoneal cavity. If there is no sign of pus seepage then a drainage incision similar to the one above described should be made just external to the abscess and a drainage tube inserted. The exploratory incision should now be closed without drainage unless perchance it becomes contaminated. No attempt is made to find the appendix, but if it should present itself, so that it can be removed without disturbing or breaking up the adhesions, it is removed.

According to Kocher, Korte's mortality was only 0.5 per cent. when the abscess was simply opened, while it was 8 per cent. when the radical operation was done at the same time.

Abscesses not only form at the classic sight between the umbilicus and the anterior superior spine but in the left illiac fossa, in the pelvis, in the right lumbar region, below the liver or diaphram, varying with the original position of the appendix. On this account it is obvious that incisions must be made to meet these conditions, whether it be in the right or left side above Pouparts ligaments, in the middle line, or below the costal margin.

4. The Interval Period. This offers only slightly different conditions for operative interference than if done in the very early hours of this disease, providing enough time has elapsed since the acute stage so that resolution of the inflammatory process has completely taken care of all infecting organisms and the exudate has been absorbed. Just how much time should elapse before the interval operation will of course depend upon the severity of the last attack, varying between ten days and three months.

Whether every patient who has had an attack of appendicitis and recovered should have the interval operation is perhaps best answered by the fact that everyone who has had one attack is predisposed to another by the adhesions and scars of the inflammation, and that 60 per cent. of interval operation cases have had more than one attack. Incisions large enough to thoroughly explore the illio-cecal region, watching out for bands of adhesions, and the incompetent illio-cecal valve, make for best results in surgery of this region performed during the quiescent stage of this disease. The early use of cathartics after operation is a potent factor in the preventing of adhesions reforming and should be well looked to.

In my own experience I have had twelve cases of appendicitis with abscess to deal with which have been treated by these methods. In all of these cases no attempt was made to find the appendix, and in only one case did the symptoms recur when finally at the third attack before the abscess had formed the appendix was sought for and removed. In this case the appendix had sloughed off at its base and was attached only by its mesentery.

All cases are advised that they should have the interval operation, but it is not always possible to secure consent. My mortality record thus far is clear with one exception, that of a ruptured abscess with general peritonitis before operation.

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The Effect of Opium Alkaloids on Respiration.—D. I. Macht has reinvestigated the effect of opium in two classes: In the one class is morphine, the prominent sedative alkaloid, which may not interfere with efficient respiration when the dose of the drug is small. In contrast with this are narcotin, papaverin, narcein, thebain and cryptopin, all of which are stimulants and in large doses are excitants of the respiratory center. Codein belongs to the morphine class, though in large doses it may also excite the respiratory center. The action of mixtures of opium alkaloids is a summation of their individual effects. It thus appears that if the object sought is a reduction of the labored activity of the respiratory muscles in a given case, the drug opium itself or mixtures of its alkaloids are to be preferred to morphine alone. If, on the other hand, it is desired to diminish the excitability of the cough reflex mechanism, it seems that a simple substance, as morphine or dodeine, is to be preferred (*Jour. A.M. A.*, Feb. 12, 1916, p. 514).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, February 3, 1916

The President, UDO J. WILE, M.D., in the Chair
Reported by REUBEN PETERSON, M.D., Secretary

THE ASEPTIC TECHNIC METHOD IN THE MANAGEMENT OF A CONTAGIOUS HOSPITAL.

REPORT OF THE CONTAGIOUS DEPARTMENT, UNIVERSITY HOSPITAL FOR THE YEAR 1914-1915.

DAVID MURRAY COWIE, M.D.

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During the year ending June 30, 1915, two hundred and twenty-three cases were cared for in the contagious division of the Pediatric Service of the University Hospital. The new Contagious Hospital received its first patient August 9, 1914. The following diseases were treated:

TABLE I.

List of Cases Entering Contagious Hospital from August 9th, 1914 to July 1st, 1915.

	Cases	Recoveries	Deaths
Chicken-pox	29	29	0
Diphtheria	49	49	0
Diphtheria Carriers	3	3	0
Erysipelas	4	4	0
Erysipelatous Cellulitis	1	0	1
German Measles	1	1	0
Impetigo Contagiosa	3	1	2
Mumps	29	29	0
Pemphygus	1	1	0
Scarlet Fever	26	26	0
Septicemia	2	0	2
Small-pox	3	3	0
Tonsillitis, acute follicular	27	27	0
Whooping-cough	1	1	0
Pharyngitis, acute	2	2	0
Observation cases*	42	42	0
Total Cases	223	218	5
Mortality	2.24%		

*Included in Observation Cases are:

Anomalous rashes and eruptions	6
Directly exposed cases	27
Miscellaneous cases	9
	42

These cases came from the following locations: (See Table II)

The number and variety of cases by months is recorded in Table III.

The policy of the hospital during the year has been to put into operation, as an investigation, the aseptic technic method. This method, as you well know, ignores, within three feet of the bed, the air borne theory of the spread of contagious diseases, and supports the idea that the very great majority of contagious and infectious diseases are communicated from one individual to another, or from one place to another, by means of direct or indirect contact. In other words, the infected person has come either in direct contact with the patient or with something that has, directly or indirectly, touched him.

If this idea can be proved to be correct or adequate, at once a great economic factor has been introduced into contagious hospital work. It permits of ward nursing, that is, as in a medical ward, a nurse passes from a diabetes case to a nephritis case without contracting the disease herself or conveying it to another, so, in a contagious ward, a nurse or a physician may pass from a scarlet fever patient to a measles or a diphtheria patient without contracting the disease himself or conveying it to another. In other words it means that the time of a nurse, which cannot be fully occupied by the needs of a single patient, may be utilized to care for several others. It further means that the combined efforts of several nurses, who may safely come together without fear of contaminating each other, produce greater efficiency and accordingly, I believe, a better managed hospital than could possibly be attained by the older method at a greater cost.

Our first experiment was carried out in the Palmer Ward, while the new hospital was in

process of construction. In conducting this work, we take into careful account the fact that certain contagious diseases, chicken pox and measles for example, are harder to control than others. Their contagium, while less viable, for some reason is either more easily received by individuals or is more proliferative. A case of chicken pox broke out soon after the patient entered the ward. One of the isolation rooms in the ward had been arranged for carrying out the aseptic technic. The case was recognized very early, and few, if any, were exposed. Accordingly quite a favorable opportunity presented itself for our investigation. The nurse in charge of the ward, Miss Ware, had gone over the details of the aseptic technic previously with me, and very intelligently coöperated in conducting this simple, but, as will be seen later, successful experiment. The patient had a well marked case of chicken pox. The nurses assigned to his care, observing the technic, the details of which I will not detain you with at this time,[1] attended to the patient's needs and passed from the isolation room to attend to their several duties on the ward. In other words, this case was treated, with the exception of the aseptic precautions, as a ward case on the same floor with thirty to thirty-two other children. No quarantine was placed on the ward. The

TABLE II.

August 8th, 1914 to July 1st, 1915.
Conditions for which they entered.

Patients entered the Contagious Hospital from the following localities.		Chicken-pox	Diphtheria	Diphtheria Carrier	Erysipelas	Erysipelas Cellulitis	German Measles	Impetigo Contagiosa	Mumps	Scarlet Fever	Septicemia	Small-pox	Pemphygus	Tonsillitis, acute follicular	Whooping-cough	Observation	Pharyngitis, acute
Chelsea	1		1														
City	37	3	7		1				1	9	1	2		4		9	
Health Service	62	4	12		2		1		25	1		1		10		6	
Homeopathic Hospital	1	1															
Hospital Waiting Room	3														1	2	
Maternity Ward	2													1		1	
Medical Ward	14																
Internal Medicine	3		1							1						1	
Dermatology	10	1	2											1		6	
Neurology	1		1														
Eye and Ear Wards	14																
Ophthalmology	3		2											1			
Otolaryngology	11		4	1	1	1			2		1			1			
Psychopathic Ward	1	1															
Surgical Ward	9																
Men's Surgical	9		5							1				1		2	
Women's Surgical	0																
Palmer Ward	68																
First Floor	17		9	2										2		3	1
Second Floor	51	16	4					3		12			1	2		12	1
Nurses Home	2								1					1			
Contagious Hospital	9																
Nurses	3													3			
Cross Infection	5	2	2							1							
Intern	1									1							
Total Cases	223	28	50	3	4	1	1	3	29	26	2	3	1	27	1	42	2

1. The reader is referred to Prof. Peterson's article on The New Contagious Hospital, Journal of the Michigan State Medical Society, May 1914.

case ran a normal course, and no case of cross infection of chicken pox developed in the ward. Had this been a case of scarlet fever or of diphtheria such a result would have meant nothing, for we are all quite familiar with the fact that many individuals may be exposed to

tion I was accorded all the privileges of the hospital, and shown many courtesies by its medical superintendent, Dr. D. L. Richardson. I lived in the hospital until I was sure I understood the technic, and until my previous opposition was overcome by the evidence which

TABLE III.

Contagious Hospital Report by Months.

	Chicken-pox	Diphtheria	Diphtheria Carrier	Erysipelas	Erysipelas Cellulitis	German Measles	Impetigo Contagiosa	Mumps	Pemphygus	Pharyngitis	Scarlet Fever	Septicemia	Small-pox	Tonsillitis, acute follicular	Whooping-cough	Observation	Total	Cross Infections Occurred
August		1		1	1						1	1		1		1	7	
September		3												1		3	7	
October		1	2							1	2			2		2	10	
November	4	7				1		2		1	4		1	4		2	26	2
December	3	8						1			1		1	4			18	3
January	2	3						5			1		1	4		7	23	
February	4	1						9	1		4			2		12	33	
March	8	5						7			11					5	36	
April	6	11	1				3	3			2			3		5	34	
May	1			1				2				1		3		1	9	
June	1	9		2										3	1	4	20	
Total of	29	49	3	4	1	1	3	29	1	2	26	2	3	27	1	42	223	5
Fatality	0	0	0	0	1	0	2		0	0	0	2	0	0	0	0		0

Total number of cases including secondary diseases 223

Total number of admissions 215

Total number of secondary diseases* 8

*By secondary diseases are meant diseases developing in the hospital after admission, contracted either within or without the hospital. They are as follows:

Diseases	Contracted in hospital	Contracted outside of hospital
Chickenpox	2	1
Scarlet Fever	1	1
Diphtheria	2	1

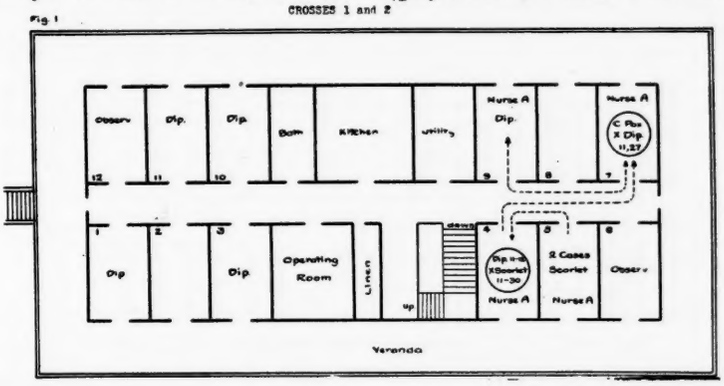
each of these diseases without becoming infected.

Several weeks prior to this experiment no one would have condemned it, on general grounds, more than myself, but during this time, I had gone to Providence to investigate the system as practiced there. At that institu-

daily confronted me. We are indebted to our medical director, Dr. Peterson, for his tactful insistence that this method be given a trial. He had been to Providence and had seen, he returned and conquered our prejudices. Two objections to the method, which I stated at that time, I still cling to, and these are the

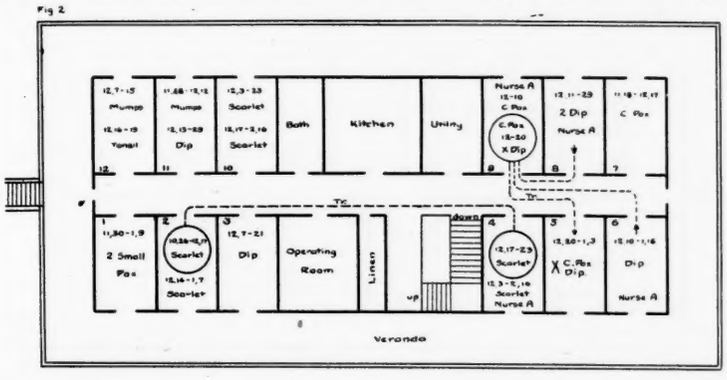
only ones which give me any concern in the conduct of the hospital to which I am fortunate enough to be assigned. They are: I, The danger of incubating cases among the nurses and attendants. II, The danger of diphtheria carriers among the nurses and attendants. For example, a nurse or a doctor or a medical student may not have had the disease, upon the case of which he daily attends, he may become infected, and he may not know when, hence

Fig 1



his incubation period cannot be watched as it would if he had accidentally and knowingly infected himself. For example, let us suppose that he knowingly infected himself with chicken pox, under this condition he would not be of danger to others for many days (let us say 12 days) after which time he could remove himself from contact with others until the entire incubation period (16 to 17 days), is over. In the case of diphtheria, it is a well known fact that a person may harbor the diphtheria bacil-

Fig 2



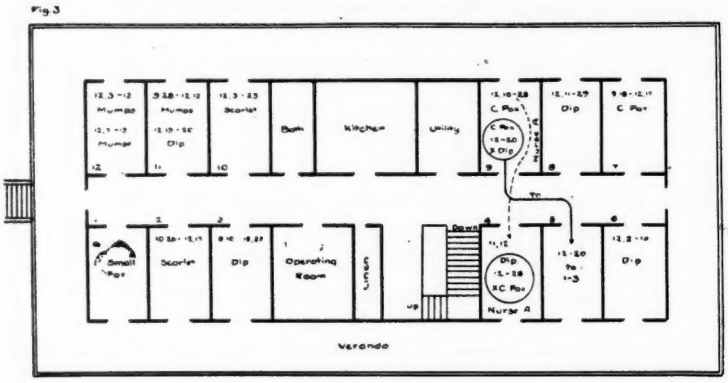
lus in his nose or throat and not develop the disease himself. He may, nevertheless, transmit it to those who are susceptible. Frequent cultures of the nose and throat of those exposed to diphtheria may show negative results for many days, when at last a positive culture is obtained. The mere fact that the culture is positive compels us to admit that damage may have already been done. I believe these obstacles, however, are not insurmountable. Certainly our experience, and particularly that of Providence City Hospital, tends to minimize in our minds the probable danger from either of these sources. The whole question depends upon efficient technic and conscientiousness.

Let us now take up the several factors entering into our investigation: First, the danger to those who come to the hospital to learn (medical students, visiting physicians and nurses), and those who come to the hospital to serve (physicians, nurses and attendants); Second, the danger of patients.

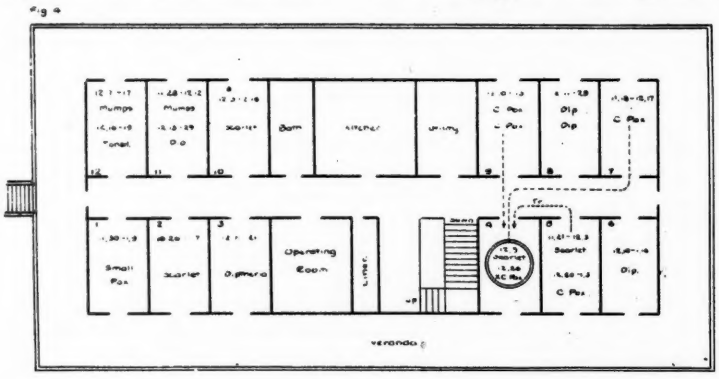
First: Nurses, doctors and students enter the contagious hospital with this thought impressed upon them, "If you get any of these diseases it is your own fault, it is a confession that you have been faulty in your technic, if you adhere strictly to every minute detail which has been carefully thought out, and which may seem unnecessary, you will not contract the diseases nor will you transmit them to others." What happened from this part of our investigation? During the college year eighty students made over 800 visits to the bedsides of these highly contagious patients, not one was infected; thirty-five nurses served on an average of forty-six days each on the ward, none was infected; twenty-two doctors from the various clinics and the health service visited the ward, none developed any of these diseases. The three members of my staff were in constant attendance, and in close contact with the cases, making physical examinations, etc. My intern con-

tracted scarlet fever.[2] No infection occurred in our janitor who handled all the infected linen, etc., nor in the maids attending to the cooking and general housework.

Was any disease carried from the contagious hospital to other wards of the University Hospital or to the city? We were constantly fearful that we might carry some malady to other parts of the hospital. We made a careful investigation of each case or series of cases that



developed in the hospital. Fortunately it so happened that chicken pox and scarlet fever were the only diseases which required investigation. The long incubation period in the case of chicken pox, which is quite uniformly from fourteen to sixteen days, enabled us to clear up this point. For example: a child enters the hospital six days previous to its outbreak of chicken pox, inference, infection outside the hos-



pital. A child breaks out with chicken pox fourteen to sixteen days after a case is known to have been present in the same ward, inference, infected in the hospital. With regard to scarlet fever, had this disease developed in a non-infected ward to which we were accustomed to go during our attendance upon scarlet fever patients we could not say positively that we had not carried it. In this instance, it fortunately occurred that the source of our scarlet fever cases could be either directly determined, or it could be shown that they developed at a time when there were no scarlet fever cases in the contagious hospital. Dr. Wessinger, our health officer, found no cases in the city which could be traced to an infection coming from the contagious hospital.

What might be offered as a further proof that we did not carry the disease is an illustration in my own family: I took no further precautions after leaving the contagious hospital, my 2 year old child was almost constantly with me during my time at home, she has yet to develop a contagious disease. None of the children I have attended in my practice for a contagious disease had been in contact with me within the minimum or maximum incubation period. This part of our investigation, I think, makes an unusually good showing, and it should eliminate the idea that the contagious hospital is in any way a menace.

II. The question which is uppermost in most of our minds is that of our failures. May I preface my remarks by saying: we are not wedded to our beliefs, we endeavor to enter upon our work with open minds. Criticism, if justly given, is the thing which we and all workers in this field desire the most. What degree of efficiency we may now have attained has come through a constant, friendly but serious criticism of each other, and from that

2. Onset of disease March 20. No crosses since December. Accordingly this infection was not responsible for a cross.

received from various members of the University Hospital staff. A nurse on service in the contagious hospital is compelled to reverse the order of things in other parts of the hospital, to a certain extent. She is reprimanded if she fails to see and report a fault in her superior's as well as in her inferior's technic. The idea of contamination and cross infection is never out of our minds. During the year which this report covers we have had eight cases of what we have designated secondary diseases. By this we mean diseases developing in the hospital after admission, other than those with which the patients entered; contracted either in the hospital or outside the hospital. By referring to tables II and III it will be seen that five of these cases (two chicken pox, one scarlet fever, two diphtheria) were contracted in the hospital and that all of these cases of cross infection occurred during the months of November and December, our first crowded period. The crosses were as follows:

First Cross.—Room 7, (Case 1541) Chicken pox with diphtheria. Patient entered the hospital November 19, 1914. He had complained of a sore throat before and after entering the hospital. For this reason several successive cultures were made (November 19, 26, 27) all of which were negative. The night of the 27th an exudate appeared on both tonsils. A second culture was taken this day. A clinical diagnosis of diphtheria was made. The culture proved positive. Uneventful recovery. The throat became negative before it was time to discharge him for chicken pox.

Tracing the Cross.

Room 7. There has never been a case of diphtheria in the room. The patient has not been out of his room and entered it from the outside as is the custom. The infection was accordingly brought into the room.

Diphtheria cases in rooms 9 and 4. Nurse A on these cases also cares for patient. This nurse's technic has been very faulty. The other nurse's technic is excellent. See crosses 2 and 3.

Second Cross.—Room 4, (Case 1523) Diphtheria with scarlet fever. Patient entered hospital with nasal diphtheria November 12. He developed a marked case of scarlet fever November 30. The incubation period was accordingly begun in the hospital. Uneventful recovery.

Tracing the Cross.

Room 4. There were two cases of scarlet fever in the adjoining room 5. Nurse A attending cases in this room also cares for patient. The further distribution of cases in the hospital at this time may be seen in Fig. 1.

Third Cross.—Room 9, (Case 1577) Chicken pox with diphtheria. The patient and his brother entered the hospital with chicken pox December 10 and were placed in room 9. He developed diphtheria December 20. There were diphtheria cases in rooms 8 and 6. Nurse A attending these diphtheria cases also cared for patient. Reference to Fig. 2 will show the distribution of cases in the hospital during this period.

Fourth Cross.—Room 4, (Case 1523) Diphtheria with chicken pox. Patient entered the hospital with nasal diphtheria November 12. He developed chicken pox December 26. The attack was very mild. Two cases of chicken pox entered room 9 directly across the hall December 10, just sixteen days previously. In our experience sixteen days has been the almost constant incubation period in chicken pox. The case in room 7 was not infectious at the time this patient entered the hospital. Nurse A who attended cases in rooms 9 and 4 also cared for this patient. The distribution of cases in the hospital at this time may be seen by reference to Fig. 3.

Fifth Cross.—Room 4, (Case 1545) Scarlet fever with chicken pox. Patient entered the hospital with scarlet fever November 21. Room 5. Transferred to room 4 December 3. December 26 he developed chicken pox. Sixteen days previously two cases of chicken pox entered room 9. The patient had been in the hospital thirty-five days. The incubation was accordingly spent in the hospital. This cross and cross 4 developed the same day. Inference, infected by the same means. Nurse A terminated her services in the hospital January 30.

Discussion.—It is not our purpose to lay all our cross infections at the door of Nurse A. It is rather convincing circumstantial evidence, however, that she was responsible for most of the crosses. She was not an incompetent nurse. Her work on other wards had been satisfactory. She would not, however, follow the technic of the contagious hospital and she made many serious blunders. Because of her past good record we did not dismiss her from the service. We hoped we were wrong in our judgment of her. Another source of cross infection might be traced to our night superintendent. This nurse attended to all the patients on the ward during the night, unless it was necessary to have night specials. She visited all of the patients and might have carried a disease from

one room to another. If this was the case should we not also expect to have cross infections in the south end of the building as well as in the north end where all the crosses occurred? The same argument might be applied to the intern. It is quite reasonable for us to expect that those who are the most constantly in touch with the patients are the most likely to carry infection. These are the nurses and interns.

The cross infections cannot be traced to the students because during their visits to the hospital several individuals are assigned to watch every movement they make. It is noteworthy that the students make few breaks in technic. It is also not impossible that the staff, I include myself, may have been responsible for a cross infection. I think, however, that this is less likely for reasons given before.

That cross infections occurred in no way disproves the practicability of the theory upon which we have been working. It does on the other hand show the danger we are constantly subjected to from our dependence upon the human equation. We have learned much. The most important thing we have learned is that it is not every one who can master this simple technic. Some nurses cannot compass it. As some individual perfectly sound mentally and brilliant in other lines are stupid in arithmetic or spelling, so we find nurses perfectly capable in all other ways, and willing to learn, who are absolutely devoid of the sense of contamination as applied to contagious cases.

The surgeon protects his operative field for the benefit of his patient and his hands for the benefit of himself. He pays little attention to his gown or the furniture he touches with it so long as he does not infect the field of operation. He who carries out aseptic technic as applied to contagious cases recognizes a difference. While the principles are exactly the same they go a little farther. In this instance the one observing the technic is constantly on the watch to see that he touches nothing without assuring himself that the thing he touches touches nothing else. We are all familiar with the consternation of the surgeon when some one comes in to view his operation and voluntarily assists with unsterile hands. He feels that "it is all up with the job." We experience exactly the same feeling when a person comes into our contagious fields, touches a bed with his gown, leaves the room without washing his hands, picks up the sterile chart in the corridor, leans up against the sterile wall of the corridor, and insists upon conferring with the nurse about some statement on the chart which he does not understand, and unintentionally listens so closely that he touches the hem of her garment. For us this means in the first place an attempt at diplomatic language, an effort to instruct so that the offense may not be repeated, and a gentle speed to the departing guest. But this is not all. In the second place it means that the walls must be scrubbed, the charts fumigated or recopied and that the nurse must change her uniform, because when a nurse is in the corridor she is uncontaminated. The success of the hospital depends upon these very simple, and yet at first sight seemingly complicated rules. This brief reference to the underlying principles of our technic will explain to you why we may appear ill at ease when a stranger to our methods enters the ward.

The final questions we should ask are: has the hospital under the aseptic technic method been a success; and how can the efficiency of the hospital be improved?

The report speaks for itself; 2.23 per cent. is not a high rate of cross infections. It is, however, too high. There should be no cross infections, and this is perfectly possible with perfect technic. Since the last recorded cross in this report we ran to within a few days of a year without a cross infection. That cross was chicken pox. During the most crowded time covered by the report (March and April) we had no crosses. At one time we had small pox, chicken pox, scarlet fever, erysipelas, mumps and diphtheria in the ward at the same time and no crosses occurred. I think we are compelled to say that the hospital has been a success under the aseptic technic method.

How can its efficiency be improved? More and better help and a new building or an addition to the present one. We should have one ward to isolate such diseases as chicken pox and measles. These diseases will always give us trouble. There were times during the period covered by this report when our hospital was crowded. There have been times since last June when we could not accommodate all the patients who were sent to the hospital. We should at least double our present bed capacity.

A glance at table 2 shows that the Palmer ward furnished the largest number of cases, (68) from one locality. The entire University Hospital sent 101 cases or approximately 41 per cent. of the total number of cases. The Health Service came third with sixty-two cases, forty-six of which were specific contagious dis-

eases; forty-seven of the cases from Palmer ward were specific contagious cases.

It will be seen that the Palmer ward is the greatest center of infection to the University Hospital. It always will be, for these exanthematous diseases are almost essentially diseases of childhood. It is impossible to head off the first case until it develops and then the mischief is done. For the good of the hospital as a whole it is a great mistake not to see to it that the best conditions possible be obtained for handling the cases which come to this ward, now the largest in the hospital group. We need one or two empty clean wards to which cases not exposed, or vice versa as the case may be, can be moved on short notice. These, I believe, should be the first rooms provided whether we increase our bed capacity or not.

The benefit of the hospital to the City of Ann Arbor is apparent. Ninety-nine cases, eighty-four of which were specific contagious diseases were removed from places where absolute isolation could not be carried out, and thus this many centers of infection controlled. The homes, fraternity houses, and rooming houses. from which these cases came were realesed from quarantine within very short periods and their economic loss reduced to a minimum.

The benefit to the University is also quite apparent.

To the University Hospital as a whole the advantages of the contagious hospital are hard to enumerate. At another time I hope to consider with you our methods of carrying out our work in the hospital with the hope of a free discussion as to ways and means whereby we may serve your needs more perfectly. The severest kind of a test possible, I believe, has been given the aseptic technic method in our hospital. In tracing our cross infections, air currents could be eliminated as probable factors. The prevailing winds are from the West.

In closing I wish to thank the members of the clinical staff for their coöperation and helpful criticisms throughout the year and to acknowledge the painstaking and skillful help of my former instructor, Dr. Albert A. Beifeld.

DISCUSSION.

DR. REUBEN PETERSON: We certainly are under great obligations to Dr. Cowie for this very interesting report. My interest in the contagious hospital came through my executive position in the General Hospital, and as the history of the building of the contagious unit of our Hospital is rather interesting and probably unknown to most of you, possibly I may be allowed to sketch it in a few words.

The City of Ann Arbor gave to the University twenty-five thousand dollars for the erection of a contagious hospital, the University to furnish the site and plans. At that time I do not think any of us had a very clear conception of what was needed or could be erected for the sum given. The first plans submitted were very curious in the light of what were afterward adopted. They provided for three hospitals, each entirely separate and with its own equipment, the idea being that the different contagious diseases were to be treated in their own distinct units. Among other things it was planned that the students were to gaze at and study the contagious patients in an amphitheater through a glass partition, a very different arrangement from the one Dr. Cowie has outlined this evening. There seemed to us nothing incongruous in this scheme since we had the idea that the diseases must be separated and the students protected and prevented from carrying the diseases to others. Fortunately, however, as it finally transpired, the plans had to be abandoned since they called for an expenditure of one hundred thousand dollars, four times as much as we had at our disposal.

So it fell to my lot as executive officer of the Hospital to see what could be done. In brief I visited all the large contagious hospitals in the East, and found most of them using the unit system, separating the patients with the different contagious diseases, and taking elaborate precautions against cross infection. In Providence, however, I saw a hospital where one pavilion was conducted upon the medical asepsis plan Dr. Cowie has described. So successfully had this plan worked out that I became very enthusiastic, for I saw its possibilities of adaptation to our own situation. Upon my return the plan was submitted to Dr. Cowie and the other clinicians connected with the Hospital with the result that the present contagious hospital was erected. In one way it was a great risk for it was an entirely new idea to this part of the country. We are certainly indebted to Dr. Cowie and his assistants for developing and carrying out the present technic and demonstrating beyond a shadow of a doubt that it is the right theory of treating contagious diseases in connection with a general hospital such as this.

In the old days before this hospital was built and especially in recent years when there was a great increase of patients in all departments of the Hospital, especially in the Pediatric Department, outbreaks of contagious diseases were inevitable. The Hospital had to be quarantined quite frequently which meant a great financial loss as well as great injury to the teaching in the Hospital. Some of you will remember these horrible conditions, although we are apt to forget as soon as the situation is taken care of. How abused we would feel now if we had to quarantine the Hospital for scarlet fever and do as we once did, board up the summer houses just west of the interns' home for a contagious disease ward. Even if the University had been obliged to pay twice the cost of the contagious hospital we would be better off financially because through this building we have escaped quarantines.

Dr. Cowie is correct in the statement that there will always be danger of cross infection in a hospital such as ours unless the technic be carefully carried out. The same is true in the operation room, where infection occurs less frequently because the medical profession has been educated in surgical

technic during the past twenty-five years. When a bystander poked a finger into the wound years ago, it was done through ignorance which now has almost entirely disappeared through the proper education. But physicians have not been educated in this newer medical asepsis, so essential in preventing cross infection in the contagious diseases, and commit all sorts of blunders unless they are watched. Dr. Cowie and his assistants are as much pioneers in this medical asepsis as some of us were in the old days in surgical antisepsis and asepsis.

Who has not seen nurses in an operating room apparently totally unfitted for surgical work? No amount of training will fit the doctors and nurses of a certain type for aseptic work. They may have an intellectual grasp of asepsis but their hands can not be trained to carry it out. If a nurse after a fair trial can not be taught she should be banished from the surgical and contagious services in order to safeguard the patients.

In one way it is easier to carry out the technic of medical asepsis when the patients are separated from each other merely by glass partitions or screens, since the close proximity of the patients is a greater reminder of the danger of cross infection than when the patients are in separate rooms. That the germs from these various contagious diseases are not airborne is demonstrated by our hospital where there are constant cross currents due to the doors of each room opening out onto the porch and central corridor. It was a question whether the porch should be built since it added greatly to the cost of the hospital but I think it has proved to be one of its most advantageous features.

I am inclined to think that in the future it will be much easier to disinfect the rooms by washing the walls after the latter have been properly prepared with enamel paint which lack of funds has prevented up to now. It is particularly interesting to see how in this building it has been demonstrated that no longer is it necessary to disinfect a room through fumigation, an expensive and always dangerous procedure in spite of every precaution against fire. No case of cross infection has been traced to this source although the different rooms have been used indiscriminately for the different contagious diseases. So well has the method of disinfection by washing worked that it has entirely superseded the old fumigation methods in the General Hospital, no matter how violent the case.

We shall always be in danger of an outbreak of contagious disease in the Palmer Ward for Children until Dr. Cowie's request for an isolation ward be granted. Since one cannot say positively that a child is not in the incubating stage when admitted to the Hospital, the only safe way is to keep him in the observation ward until it has been proved that he is free from a contagious disease. If our present system is continued, there will always be danger of infecting an entire ward of children since it is too late when the disease once manifests itself to prevent the exposure of the other patients.

I hope Dr. Cowie will follow this paper by another in which the technic is fully set forth, for the profession and public are intensely interested at the present time in this new method of treating contagious disease, since by this technic it becomes possible to treat a variety of contagious diseases under one roof with the minimum amount of danger of cross infection and at a minimum expense for construction of the hospital building.

DR. HARRY S. SCHMIDT: I well remember the difficulties we had to contend with before the contagious hospital was built. I think it would be very interesting to make note of the cross infections that occurred in the Hospital before its establishment.

DR. CARL H. LAWS: I should like to say that Dr. Cowie's report is remarkable compared with the reports from contagious hospitals, with the glass partitions. There are innumerable cases that develop between diphtheria and scarlet fever and the technic is the usual technic carried on in institutions of this order. When I first arrived here the technic seemed far stretched, but now I can see the wonders of it, the small number of cases of cross infections we do have, and what it means to carry out the technic in all its details in order to prevent these cross infections. The statistics from contagious hospitals and institutions throughout the country will show a larger percentage by far of cross infections developed under the old plan compared with the few cases that have developed under the new technic.

DR. COWIE: I have nothing further to add except to say that I omitted to compliment the nursing staff. These nurses are doing remarkable work in the contagious hospital and each month their efficiency increases. It is owing to their careful watchfulness that the hospital has been able to make the record that it has.

With regard to the nurses breaking technic. We have a rule now that overcomes this to a large extent. Every nurse that comes to the contagious hospital is put on probation. She serves two weeks. If her technic is not good, it is asked that she be assigned to some other service. We have had to put this rule into operation more than once.

REPORT OF A CASE OF DIBOTHRIOCEPHALUS ANEMIA.

HARRY B. SCHMIDT, M.D.

(From the Department of Internal Medicine, University Hospital, Ann Arbor, Michigan.)

This patient is a Finnish woman. Her color and panniculus in no way differs from that seen in cases of pernicious anemia. The fact that she is Finnish led us to suspect that she might possibly have a bothriocephalus infection. We have been looking for this infection here for a number of years, and I am not aware that there has ever been a case of the kind in the Hospital before. We found many eggs in her stools, four or five to a field. Previous to the stool examination, we examined a blood smear and Dr. Gilbert and I both concluded that it was not typical of pernicious anemia. One of the interesting features to me was the absence of an eosinophilia.

She is 38 years of age and came to this country fifteen years ago. The present trouble began in March, 1913 following the drowning

of her son. At that time she saw his remains removed from the water and suffered a hemorrhage from the nose, then became unconscious. Following this she was very weak and had to take to her bed. There was a gradual recovery from these symptoms, but since then she has noticed shortness of breath, palpitation of the heart, roaring in the ears, occasional dizzy spells and increasing pallor. There are no stomach complaints, diarrhea nor constipation.

Upon examination, the patient shows a pronounced pallor of the mucous membranes and skin, together with a lemon yellow color, which is most marked over the face. There are no other evidences of disease except a slight increase in the heart rate and hemic murmurs.

Blood examination: red cells 810,000, white cells 7,500 and hemoglobin of 20 per cent. Color index is less than one. Differential count of 200 cells shows 23 per cent. small lymphocytes, 3.3 per cent. large lymphocytes, 6 per cent. transitionals, 45 per cent. polymorphonuclears, 2 per cent. eosinophiles, 11 per cent. neutrophilic myelocytes, 3.5 per cent. normoblasts, 6 per cent. megaloblasts, marked poikilocytosis and some anisocytosis and marked polychromasia. The size of the red cells are normal or below normal, no macrocytes seen.

The urine is negative. Systolic blood pressure 178, diastolic 90. Wassermann reaction was doubtful.

This disease is rare in North America although we live in a locality where Nickerson, the first in the United States to study it carefully, reported that the infection most frequently occurred in the Great Lakes region. There are very few cases reported in the literature. It must be that many have failed to report their cases so that this would be the reason for its apparent rarity.

The disease is not rare around the Black Sea, in Russia, Finland and Switzerland. It is the commonest tape worm found in Japan. The infection is obtained by eating raw or smoked fish and I understand that this is a common occurrence among the foreign population in the Upper Peninsula of this State. In America the disease is almost invariably found in foreignors, the majority of whom are Finlanders.

Dr. A. S. Warthin of the University of Michigan has reported the infection of fish with the bothriocephalus cysticercus and has also noted the disease in native Americans.

The bothriocephalus was first observed in this country by Dr. Walker in 1879, and since then numerous cases have been reported, mostly around the Great Lakes region. This worm is the longest of any of the tape worms. Wilson has reported a case of multiple infection, one of the worms measuring eighty-three feet, two inches in length.

The symptoms of the disease as described in most textbooks are variable. There is hardly a subjective symptom described which has not been at sometime or another attributed to this infection. Many books on clinical microscopy and medicine state that the blood picture may be identical with that of pernicious anemia. I take exception to these statements. I can find no instance in the literature of a case with an anemia exactly resembling pernicious anemia. The diagnosis is made on the high color index, polychromasia, poikilocytosis, anisocytosis and large numbers of nucleated red cells, the majority of which are usually megaloblasts. The diagnosis of pernicious anemia cannot be made upon these findings alone without question.

Many cases of pernicious anemia are seen in this Clinic each year and I have yet to find a case which did not have large numbers of macrocytes in the blood on every examination. The finding of large numbers of megaloblasts in the anemia, due to the bothriocephalus is the rule; however, one will observe that this occurs when the anemia is taking a progressive downward course. Directly the opposite happens in pernicious anemia. When the hemoglobin and red cells are on the incline, nucleated red cells are seen in showers.

This patient has the achlorhydria so often described as accompanying pernicious anemia. The paraesthesias and other nervous phenomena found in this disease, due to posterior lateral sclerosis, are absent in this case. I have been unable to find an instance in the literature where this lesion was described as due to the bothriocephalus infection or to the anemia accompanying it.

The absence of an eosinophilia which is common to this disease, interested me particularly. In trichinea infection the eosinophiles do not appear until after the disease has reached its apex. It is not uncommon to find high percentages of these cells in the blood after the patient has recovered from his illness or at least from the symptoms accompanying it. An absence of eosinophiles in the blood has also been described in the late stages of the most severe forms of secondary and primary anemias, and some authors claim that the eosinophiles reappear during the stage of recovery and state that this is a good prognostic sign. I was sorry that this patient left the Hospital before we

could determine the possibility of an eosinophilia during her convalescence after the worms had been removed.

Following the usual treatment with aspidium, we recovered four worms from this patient. I will pass the specimens around for your inspection. You will observe that the rosette shaped uterus which so easily distinguishes this worm from all other tape worms is conspicuous, also that the heads are very tiny as compared to the head of the tenia saginata.

I might state that the low color index here observed, is not uncommon in cases of pernicious anemia whenever the red cells are below a million per cubic millimeter, also that we have no reason to suspect that the patient acquired her infection here in America.

DISCUSSION.

DR. FREDERICK A. WALDRON: How do you account for the positive Wassermann?

DR. SCHMIDT: The Wassermann in cases of severe anemia, especially anemias due to a toxic substance, are usually positive.

DR. D. MURRAY COWIE: Has it been determined whether the eosinophilia in the case of this worm is an anaphylactic affair as it is in the case of some other worms?

DR. SCHMIDT: The disease is so rare in this country that not many cases have been studied by one man.

PUERPERAL INVERSION OF THE UTERUS; REPORT OF A CASE.

R. A. BARTHOLOMEW, M.D.
(From the Clinic of Obstetrics and Gynecology, University Hospital, Ann Arbor, Michigan).

Puerperal inversion is an occurrence of particular interest on account of its infrequency and seriousness. Probably the best source of material for the study of this condition is to be found in Thorn's article, "On Inversion of the Uterus," which is based on a critical study of 627 inversions of the uterus collected from the world's literature from 1887 to 1909. Of these, 543 occurred in connection with pregnancy, 83 cases with tumors, and 13 idiopathic.

Frequency.—While all authorities agree that puerperal inversion is a very rare complication, the figures as to its frequency vary within rather wide limits. Zangemeister on the basis of Thorn's statistics estimated the condition occurred about once in 400,000 labors, assuming that the seventy-six inversions reported from 1887 to 1909 in Germany represented the great majority of the cases. Not a single case was found in 250,000 labors in the St. Petersburg Lying-in Hospital, and the condition was observed but once in 190,833 deliveries in Dublin. Inasmuch as the condition is quite readily diagnosed, and is almost certain to come to notice, on account of the severity of the symptoms, both in the acute and chronic stage, it is probable that these figures fairly well represent the frequency of inversion. It is well to bear in mind the extreme infrequency of the complication for this fact alone is certainly not in accord with the prevailing conception of the causative factors.

Etiology.—It has not been possible as yet to assign any one important factor as the cause of the condition. In considering the numerous factors commonly mentioned in the etiology it will be convenient to consider them from the standpoint of predisposing and exciting causes.

According to Thorn, the most important predisposing cause is to be found in the fundal attachment of the placenta. Out of 191 puerperal inversions of the area of attachment of the placenta to the uterus was observed in forty cases, in thirty-three of which the placenta was specifically mentioned to be attached to the fundus. This particular area of the uterus, already more predisposed to inversion, by its location, than the rest of the uterus, would have an increased tendency in this direction due to the increased vascularity and softening at the placental site. Furthermore, if there is any tendency for the placenta to remain adherent over a small portion, the contractions of the uterus in attempting to expel the partially separated placenta, would tend to pull down on this weakened area and bring about partial inversion. Similarly the uterus would have a tendency to contract upon the partly inverted fundus, in much the same way as upon a foreign body and attempt to expel it, thereby completing the inversion. A striking analogy to the action of the uterus, upon a partially separated placenta, attached to the fundus, is seen in the fact that in the eighty-three cases of inversion of the uterus, with tumors, seventy-nine were found to be myomas, and in sixty-three of these the attachment of the tumor to the uterus was in the fundus. It is also noted that inversion of the uterus is almost three times as frequent in primiparae as in multiparae, and is possibly explained by the fact that due to the more complete approximation of the walls of the cavity of the virgin uterus the fertilized ovum is more apt to become imbedded near or at the fundus. On similar grounds it has been thought that the increased frequency of placenta previa in multiparae may be accounted for by the greater separation of the walls of the uterine cavity, thus favoring a

lower attachment of the ovum. Normally, the placenta is attached to the anterior or posterior wall of the uterus, and only exceptionally to the fundus.

The exciting causes are traction on the cord, or pressure from above on the fundus. Traction on the cord may be due to the cord being absolutely short, in which case the placenta is inevitably pulled upon as the child is born, or before the cord is cut. The cord may be relatively too short, due to an abnormal number of coils about the child, or in case birth occurs with the mother in a standing position. In many cases the responsibility appears to be with the attendant who pulls upon the cord to deliver the placenta. Probably even in these cases there would be no resulting inversion unless the placental site were in the fundus and the uterus in a relaxed condition.

Pressure from above on the fundus may be an exiting cause, as for example in the Credé expression of the placenta, attempted while the uterus is in a relaxed condition with a placenta which may or may not be situated in the fundus. In a number of cases reported, the exciting pressure has merely been that brought about by coughing, sneezing, micturition or straining at stool during the puerperium. Thorn holds that in such cases there has already existed a partial indentation, or inversion since the labor, and one of these factors completes the inversion. His theory is supported by the fact that a noticeable indentation of the fundus has been palpated and known to remain for a considerable length of time before correcting itself spontaneously.

Thorn believes that there has been a tendency to overemphasize the importance of errors in the conduct of labor, and that if traction on the cord, either intentional or unintentional, and undue pressure from above on a relaxed uterus were of primary importance, then the condition would be more frequent than satistics show. It is also significant that out of 437 cases only 154 were violent, that is, due to traction on the cord or pressure on the fundus; 180 were spontaneous, and as nearly as could be judged from the description, independent of manipulation, and in 103 the question of the inversion being spontaneous, or due to violence, was uncertain and not stated definitely. Beckmann, quoted by Thorn, found twice as many spontaneous as violent in his statistics. The mere fact that in a large proportion of the cases the labor has been conducted by midwives who have presumably erred in their technic does not have so much significance, when one realizes what a large proportion of labors are still conducted by midwives. It is only too easy to put the blame on the midwife and base it upon hearsay evidence. There is no evidence to show that the condition is becoming any less frequent than formerly with continued improvement of obstetric technic. The inversion has been known to recur one or more times in subsequent labors in the same patient as though there was a special predisposition to inversion in some cases, possibly due to abnormal structure of the uterus, as for example, in arcuate uterus. It would seem important to make a special investigation of some possible pathologic structure of the uterus whenever such a specimen can be obtained in cases that come to autopsy. There are a number of cases on record in which inversion occurred at the first labor, and in a subsequent labor, in spite of the knowledge of the previous complication and in spite of all precautions to prevent its recurrence it has happened again. Carruthers has reported such a case.

Clinical Course and Diagnosis.—The occurrence of the inversion is usually accompanied by very definite and marked symptoms but strange to say in a large number of cases there have been no symptoms whatever or else of so mild a type as to make an examination unwarranted. In Thorn's statistics there are statements in 191 cases as to the time of the diagnosis of the inversion. In 19, the inversion appeared directly after the birth of the child; in 44, directly after the expulsion of the placenta; and in 141, up to the twelfth hour. Undoubtedly the diagnosis would have been made much earlier in many of these cases had there been symptoms marked enough to have suggested an abnormality.

The occurrence of the inversion in the more typical cases is manifested by severe pain, and the patient rapidly passes into a state of profound shock, accompanied by more or less hemorrhage from the uterus. However, the shock is usually far more marked than would appear to be caused by the amount of hemorrhage. It is the hemorrhage, and especially the shock, which constitute the immediate dangers to the patient. Such symptoms lead to, or should lead to, an examination at once, and the body of the uterus may be found to have disappeared from the lower abdomen. It is often possible to palpate the inversion funnel and carry the hand down into the depression, noting its circular rim. The inverted body of the uterus may be discovered protruding from, or situated entirely outside the vagina between the patient's

thighs. On vaginal examination it may be felt filling up the vagina and bulging the perineum, the openings of the tubes may be seen or felt, and on passing the fingers along the mass toward the vault of the vagina, the soft cuff of cervix may be felt encircling the mass. There is apt to be a continual oozing of blood from the surface of the mass. The placenta, if not previously expelled, is found adhering to the surface of the mass.

Treatment.—Before taking up the treatment it is important to consider what may be accomplished in the way of *prophylaxis*. It is worth while to re-emphasize the possible dangers of making any traction whatever on the cord after the child is born, and to take measures against traction on an absolutely, or relatively short cord at the end of the second stage of labor. Also there is the possible danger of carrying out a vigorous Credé method of separation or expulsion of the placenta with the uterus in a relaxed condition. The uterus should always be made to contract before subjecting it to pressure from above, for it is doubtful whether a firmly contracted uterus can be inverted. It is important to follow the uterus down with one hand while the child is being born, but to avoid any unnecessary manipulation, or stimulation of the fundus until there is evidence of the spontaneous separation of the placenta as may be judged from the contraction and rising up of the fundus along with a slipping out of the cord from the vulva, and usually the appearance of a dark bloody discharge. Slight pressure on the fundus will induce an advance of the cord which will not recede on release of pressure if the placenta has separated. More important still is the recognition of the beginning stage of the inversion as may be seen from the reported case, and also others in the literature, for example that of Carruthers. If the hand rests on the fundus any peculiarity of its contour may be readily recognized except in case of very heavy abdominal walls, or a full bladder. The beginning inversion is practically always in the fundus, and the presence of a firm transverse ridge, high up on the body of the uterus is very suggestive. Above this ridge there may or may not project a portion of the fundus much the same as a rubber nipple may be partially inverted, leaving the end still projecting slightly beyond the level of the reflection. If such a structure can be palpated an inversion is threatened, and I do not think the attendant is justified in continuing further efforts by pressure from above but should quickly undertake a manual removal of the placenta before the inversion progresses any further. Such a procedure would certainly be less dangerous to the patient than the inversion. Even with a beginning and only partial inversion there may be a greater degree of shock and hemorrhage present than could be accounted for in any other way, as may be seen in the reported case. Thorn mentions similar findings in a case, and, believing that an inversion was threatened, made pressure in the reverse direction from the symphysis toward the promontory of the sacrum with successful result.

The treatment commonly advised in most textbooks is that of an immediate manual replacement of the uterus, and the fact is almost ignored that in a large number of cases the shock and hemorrhage may demand much more urgent treatment than the inversion itself. Zangmeister, from a study of Thorn's collected cases, strongly advised treating the shock and hemorrhage first, and choosing a time from one to twenty-four hours after the occurrence of the inversion to replace the uterus. In support of this idea he quotes the following statistics based on 158 of Thorn's collected cases:

	Failures	Deaths
Reposition at once	24%	23%
Reposition after 1-24 hours	14%	0%
Reposition after 1-14 days	40%	20%

Such statistics point very clearly to the great advantage of waiting one to twenty-four hours and not replacing the uterus at once.

Allman, however, not willing to grant such absolute deductions made an independent study of the same statistics covering 268 cases with entirely different results:

	No.	% Fail.	% Deaths
Reposition at once	139	13.6	20.1
Reposition after 1-24 hours	23	13	30
Reposition after 1-14 days	34	35.3	20
Reposition after 14 days	72	56	6.9

In other words, reposition after 1-24 hours had not only fully as many failures as if done immediately, but the mortality was 30 per cent. instead of 0 per cent.

In order to discover, if possible, how such a difference could be accounted for, regarding such an important phase of the treatment, I made an independent investigation of the same statistics from Thorn covering 255 cases with results corresponding very nearly to those obtained by Allman:

	No.	Fail.	Deaths
Reposition at once	131	12%	22%
Reposition after 1-24 hrs.	20	15%	25%
Reposition after 1-14 days	31	23%	22%
Reposition after 14 days	73	59%	4%

The difference in results between the last two tables and the first one might easily arise according to the interpretation of the abbreviation, p. p. (post-partum) used in Thorn's table, to designate the time of the discovery of the condition, but the inference in these cases was that reposition was attempted at once after the diagnosis was made following delivery.

From this, it would seem that, contrary to Zangemeister's results reposition undertaken 1-24 hours after delivery, has an even higher percentage of failures and deaths than if done immediately. The fact probably is that some cases of inversion are accompanied by very little shock or hemorrhage, and in these there is no contraindication to immediate replacement. In others there is a profound degree of shock when the inversion takes place, and if immediate replacement is attempted, there is added to the original shock a further amount caused by the replacement, and thus the patient is overcome. This is well illustrated in the case reported.

Phillips collected 184 cases of acute puerperal inversion. In 79 in which the uterus was immediately replaced in the presence of marked shock, 24 or over 30 per cent. died. In 23 cases, in which it was definitely stated that there was no shock, immediate replacement resulted in recovery in each instance. In one case it was specifically stated that replacement was purposely postponed until the severe shock had passed off, and this patient recovered.

If shock is present the replacement should be postponed and the shock treated by the usual restorative measures. If the amount of hemorrhage is threatening during this time it may be readily controlled by constricting the uterus just below the cervix with a piece of sterile rubber tubing, using just enough pressure to control the bleeding and not shut off the blood supply to the rest of the uterus. Such bleeding, not being controlled, would further increase the shock, and might account for the increased mortality in replacements postponed for a short time. The absence, or slight amount of the hemorrhage in many cases, is explained by the constricting effect of the inversion at the lower segment. This may be marked enough in some cases to lead to gangrene of the uterus. Tamponing with gauze may be sufficient in some cases but in others constriction is necessary.

After the patient has recuperated, replacement should be attempted. In any case it should be done under anesthesia to secure as complete relaxation as possible and lessen the danger of shock to some extent. If the placenta is still adherent it should be removed before replacement is attempted, thus making a smaller mass to be pushed through the constricting ring above. The separation of the placenta may set up contractions which should be allowed to subside before attempting replacement.

As to the actual technic of the replacement, there are almost as many methods recommended as cases of inversion. All may have their special advantages, and what would be suitable in one case would be unsuccessful in another. In any case care should be observed to press with as broad a surface of the fingers as possible to avoid perforating the uterus and not to use much force if the uterus is in a state of contraction. The replacement proceeds more easily and rapidly when the muscle is relaxed. The hand should be left in the uterus until the latter is felt to contract firmly and maintain its normal contour. In case of persistent tendency to reinversion it should be packed. After the immediate danger of hemorrhage and shock is passed, there is the possibility of sepsis favored by the exposed endometrium and the manipulations, sometimes carried out with uncertain asepsis. However, the mortality from sepsis is much less than that from hemorrhage and shock. The more chronic the inversion the more difficult it becomes to replace manually, and in such cases the replacement is more easily and quickly performed by operation, the technic of which is fully described in an article by Dr. Peterson, published in *Surgery, Gynecology and Obstetrics,* August, 1907, pages 196-213.

The following is the report of a case which recently occurred in the Maternity Hospital:

The patient, O. L. 22 years of age, was a primigravida; rather large build, physical condition good, pelvic measurements fully normal, urine and Wassermann negative. Family history and personal history negative. Menstrual history normal, last period probably March 15, 1915; course of pregnancy normal and uneventful. Pains began about 3 a. m. January 7, 1916 and were soon established regularly at five minute intervals. At 9:30 a. m. abdominal examination showed the position to be O. L. A., head well engaged, fetal heart 135 per minute, and the pains coming at three to four minute intervals, and lasting about forty-five seconds.

Rectal examination showed the cervix one-third dilated, and the membranes unruptured. Progress continued rather slow, but at 2 p. m. rectal examination showed the cervix fully dilated. Very soon after this the membranes appeared at the vulva and were artificially ruptured. At 2.45 p. m. there was beginning crowning which continued steadily with each pain until at 3:30 p. m., when the head was delivered between pains with the patient under the obstetric degree of anesthesia. There was no coil of cord around the neck, and with the next pain the child was born in the usual manner. It was a healthy appearing male infant, weighing seven and one-half pounds and cried at once after birth. The fundus was followed down with the hand as the child was born and remained of normal contour and consistency. There was no bleeding and the fundus required no manipulation nor stimulation. After waiting about five minutes the cord was tied and cut and the child removed. A moderate amount of pressure was then made on the fundus but apparently the placenta had not yet separated as the cord receded at once with release of pressure. The effort was not continued but the patient was anesthetized, and a rather severe second degree laceration repaired in the usual manner. A moderate bleeding was noticed which became more marked after the repair. There were as yet no definite signs of separation of the placenta, and with release of pressure on the fundus the cord receded each time. It was remarked that the upper portion of the uterus seemed somewhat wide on palpation. There continued to be an abnormal amount of hemorrhage but efforts to express the placenta by the Credé maneuver were unsuccessful. It was soon deemed necessary to do manual removal of the placenta and the usual preparations were made. A final attempt at expression was made, however, before resorting to manual removal, and at this time about 4:15 p. m. it was noted that the patient appeared in a condition of moderate shock, with pallor, shallow respirations and a pulse of 130-140 and of rather poor quality. On palpation of the fundus a definite thick transverse ridge could now be felt just below the fundus and too high for a contraction ring, the fundus projecting somewhat beyond the level of the ridge. This peculiar finding was discussed at the time and was probably the beginning of the inversion but was not recognized as such. With another effort at expression, with the uterus only moderately firm, the placenta appeared at the vulva, coming out by the Schultze method. It was noted that it was very hard to find the fundus after the placenta appeared, but this was attributed to the straining efforts the patient was making at that time. The placenta appeared to be intact, and although the cord was not measured, it was of the usual length. However, the bleeding continued and one hypodermic of ergone was given. In trying to locate the fundus the perineum was noticed to bulge as though another head was about to appear. At this time the patient was in serious condition, pallor very marked, pulse 160 and almost imperceptible at the wrist. Vaginal examination was made at once, and revealed a large round, thick, dense mass presenting at the vulva bulging the perineum, and completely filling the vagina like an immense polyp. No cervical rim could be felt until the examining finger was carried far up into the fornix, and then the condition was clearly recognized as inversion of the uterus. The patient was put more fully under anesthesia and after a preliminary cleansing of the parts the inverted fundus was pushed up, with the back of the flexed fingers of the right hand, the pressure controlled by the left hand on the abdomen until the fundus was nearly on a level with the cervical ring. At this time, by abdominal palpation, the inversion funnel could be easily recognized and outlined with the fingers; meanwhile ten ounces of saline solution were being given under the right breast. Further pressure was now made on one side of the inverted part, at the level of the reflection, in an inward and upward direction with the back of the flexed fingers, and the fundus was soon felt to resume its normal position by a rather sudden jerk much as the indentation in a rubber ball suddenly disappears. The replacement was accomplished after about five minutes' effort, and it was noted that whenever the muscle contracted it was very difficult to continue the replacement. With massage the uterus was felt to contract down and the hand was slowly withdrawn. The patient appeared to be past aid by this time. No radial pulse could be felt, and by stethoscope the heart rate was 180-190 and weak, respirations very shallow and weak. She was given one cubic centimeter of pituitrin intravenously, also adrenalin ten minims of a 1-1000 solution, ergone, one hypo, which was soon repeated, then ten ounces of saline solution under the left breast, and morphine grains one sixth hypodermatically. She was surrounded by hot water bottles and the feet held in an elevated position. Within fifteen minutes she reacted and improved steadily. One-half hour

later she was put to bed with a pulse of 140. She was very thirsty, and water was freely given in small quantities as she retained it well. Thereafter, there was daily improvement, and although the puerperium was complicated by a mild sapremia with foul discharge and moderate temperature, involution was satisfactory and the laceration healed well. The patient was allowed to go home on the sixteenth day. It was noted on examination at that time that the fundus was in normal position but could be displaced very easily.

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DISCUSSION.

DR. REUBEN PETERSON: There is very little to add to this very complete paper. It is the only case we have had in the Maternity Service since 1901. While the condition is uncommon, like any other obstetric complication, one may be so unfortunate as to meet with one or more cases in practice, hence he should have definite knowledge as to the causation and treatment of the condition.

I do not believe the accident in the case reported occurred from any error in technic but rather from some anomalous condition in the fundus of the uterus which resulted in the inversion. Certainly the Credé method of delivering the placenta cannot be responsible for the accident, when one considers the thousands of cases where this method is employed by anything but skilled hands yet with no resulting inversion. The same is probably true of the method of delivery of the placenta by pulling on the cord, since this is a common practice among midwives, yet inversion even in their practice is uncommon. However, it is well to bear in mind that all procedures such as excessive pressure on the fundus or pulling on the cord should be avoided, since such methods plus an abnormal softening of the upper part of the uterus may bring about inversion.

Dr. Bartholomew's statistics are exceedingly interesting and instructive and bear out his contention that each individual case of inversion must be judged by itself so far as treatment is concerned. It is quite possible that his patient was not in as serious a condition as he supposed, i. e. she probably had good recuperative powers because the hemorrhage was not excessive and the cause of the shock was soon removed. While it is probably best to wait awhile in the majority of cases of inversion until the shock can be overcome, there is danger in waiting more than a few hours, so rapidly does the uterine muscle contract, making it much more difficult to replace the uterus. This difficulty is increased if ergot has been given to control the hemorrhage. The latter can be quite easily curtailed by packing or by employing the method of constriction described by the essayist but the danger of sepsis through packing must ever be borne in mind. If one is obliged to wait longer than twenty-four hours after the accident, it probably will be better to wait until after the fourteenth day of the puerperium. Then, as the statistics show, replacement can be made by operative procedures with a low mortality. This is undoubtedly due to the fact that sepsis is much more prone to occur earlier in puerperium.

While the case reported is an acute, not a chronic inversion of the uterus, it may not be out of place to state that the operative treatment of the latter condition has been quite thoroughly worked out. The purpose of the various methods is to cut the constricting cervical ring and enough of the uterine wall to allow of replacement of the uterus. The cervical ring can be split from above through an abdominal incision, or from below either anteriorly or posteriorly. I have had two such cases where the replacement was made by incising the ring and uterus anteriorly. Both these women, one of whom had had chronic inversion for eleven years, made good recoveries.

It must be remembered also that if the woman does not die from hemorrhage or sepsis, she can live years with chronic inversion of the uterus. After the publication of my article in which were reported the two cases mentioned above, I had letters from quite a number of physicians citing cases they knew of where the accident had occurred ten, twenty or more years previously. Yet the women had lived in comparative comfort except for excessive hemorrhage at the menstrual periods.

DR. BARTHOLOMEW: I might remark upon the fact that the laceration was repaired before the placenta was expressed. The manipulations in replacing this inverted fundus did not seem to make any difference with the repair and the union was as good after the tenth day as if the patient had not had the parts stretched as they must have been in this manipulation. I must confess that the discovery of this condition was entirely unexpected and unlooked for. It is infrequent enough so that one is not apt to be well posted on the findings and the treatment, especially when there are such misleading statements made in the books as to what should be done, and it is up to each one as a matter of fact to work out his own procedure, according to indications, when such

an emergency occurs. But with more frequent reports of the condition and more agreement upon what should be done, the statistics in regard to the deaths ought to improve.

DR. FREDERICK R. WALDRON: What would be done in case you find a transverse ridge? Would you use ergot?

DR. BARTHOLOMEW: I believe I would stop all manipulations whatever from above and would remove the placenta manually from below and at the same time stimulate with the hand inside until I felt the uterus contract down and when the hand is withdrawn give ergot to keep the uterus in tonic contraction.

LANTERN SLIDE REVIEW OF THE MONTH'S RADIOGRAMS.

JAMES G. VAN ZWALUWENBURG, M.D.
(From the Department of Roentgenology, University Hospital, Ann Arbor, Michigan).

The slides shown were as follows:

1. Four stages in the treatment of osteomyelitis of the tibia with regeneration.
2. Brain tumor.
3. Old surgical defect of the calvarium.
4. Two cases of atrophic arthritis of the shoulder.
5. Transverse fracture of the os magnum.
6. Three cases of primary hemorrhage in tuberculosis.
7. Lung syphilis.
8. Old and extensive tuberculosis of the lungs, with a provisional diagnosis of carcinoma glottidis.
9. Advanced tuberculosis of the lungs, accepted by two life insurance companies within the past year.
10. Epigastric hernia.
11. Situs transversus.
12. Twin pregnancy.

The cases listed under (6) are of unusual interest. These cases all originated in the University Health Service. In two, the hemorrhagic sputum was obtained and shown to contain tubercle bacilli in small numbers, while all subsequent examinations were negative. In the third case, the hemorrhagic sputum had been destroyed, but that obtained at a later slight hemorrhage gave similar findings. No symptoms suggestive of the disease were given previous to the hemorrhage, and apart from the signs due to the presence of fluid in the bronchi immediately after the hemorrhage, the physical examinations were negative. The stereoscopic roentgenograms also failed to disclose the pathology.

The explanation offered by the roentgenologist is that a small ulcerative lesion in or near the bifurcation and well within the normal hilus shadow has given rise to this unexpected hemorrhage. This area is not open to roentgen observation as is the rest of the lung because of the normal density in this region and the wide physiologic variation in the extent of this shadow. This is, of course, well known. It is not so commonly known that a small lesion in this area may go to ulceration and hemorrhage before microscopic lesions appear in the periphery of the lungs.

These cases emphasize the necessity of obtaining the *hemorrhagic sputum* for microscopic examination to make a diagnosis.

In connection with the case that had successfully passed two life insurance examinations in the past year (9), the comment was offered that we were all paying this man's premium. The system is manifestly unjust that obliges the good risk to pay a premium sufficient to cover the extra hazard of a risk such as that shown, when an adequate examination would have shown the presence of cavities in both uppers and extensive involvement throughout both lungs. A little publicity in the matter of the usual perfunctory insurance examination might be in the interest of the public.

Fermented Milk.—While there is no conclusive evidence that Bacillus bulgaricus is able to establish itself in the intestine in such a way that other bacteria are driven out, it is undoubtedly true that in many cases marked improvement has resulted from the ingestion of milk culture made from it. It is by no means certain, however, that the results which have been obtained by the use of milk cultures have been attributable to any peculiar virtue in the organism itself. The beneficial effects of a sour-milk diet is attributable, perhaps, not so much to the bacteria contained in the milk as to the milk itself, which provides material for an acid fermentation in the intestine. Fermented milk is so well tolerated in many cases that their use should in general be encouraged from the standpoint of nutrient values, quite apart from the problematical "autointoxication" propaganda (*Jour. A.M.A.*, Feb. 19, 1916, p. 574).

Genoform.—Genoform, advertised as a remedy for rheumatism, gout, neuralgia, etc., is marketed with the claim that it is split up in the intestines into salicylic acid, acetic acid and formaldehyd. The statement of composition is too indefinite to permit any real insight into its possible reactions, but even if formaldehyd is liberated in the intestines, genoform could not have the properties which are claimed for it (*Jour. A.M.A.*, Feb. 26, 1916, p. 676).

The Journal
OF THE
Michigan State Medical Society
ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

Arthur M. Hume, Chairman .....Owosso.
Guy L. Kiefer .....Detroit.
W. J. Kay .....Lapeer.
W. J. DuBois .....Grand Rapids.

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Grand Rapids, Mich.

All communications relative to exchanges, books for review, manuscripts, news, advertising, and subscriptions are to be addressed to Frederick C. Warnshuis, M. D., 91 Monroe Ave., Grand Rapids, Mich.

The Society does not hold itself responsible for opinions expressed in original papers, discussions, communications, or advertisements.

Subscription Price—$3.50 per year, in advance.

May

Editorials

WHY EVERY MEDICAL MAN IN MICHIGAN SHOULD ATTEND THE A. M. A. MEETING.

The reasons why every medical man in Michigan should attend the A.M.A. meeting are many, and should be convincing. In the first place no medical man can attend these meetings without learning something. He will learn something which will be of value to him in his practice. He will go back to his constituency better prepared to practice his profession. The section meetings of the American Medical Association are thoroughly scientific and up-to-date and instructive. It has been my good fortune to attend medical meetings in nearly every part of the civilized world. I know of no more progressive, scientific and valuable meetings than those of the different sections of the A.M.A. In each section one will hear the latest phases of the special subject discussed by men eminently qualified to do so. The only trouble that one has in attending these meetings is that there is an embarrassment of riches. There are so many good things going on at the same time that one is at a loss to know which way to turn. He sometimes finds himself much in the situation of the fabled ass who, finding that he was equidistant from abundant food on each side, starved to death before he could decide upon which way to go. The papers and the discussions in the different sections are certainly worth hearing, and possibly worth participating in. One may get valuable material himself and at the same time carry information to others.

Next in importance to the meetings of the sections, I would place the scientific exhibit. Here one finds that the latest devices, the most important instruments of precision, every mechanical help in diagnosis, the latest chemical studies, all so arranged that he who runs may read. If the meetings of the A.M.A. did nothing else than bring together the wonderful and valuable scientific exhibits which have marked these meetings for the past few years, it would fill an important function and would justify every medical man in attending. There you will find the latest microscopes, microtomes, optical instruments, blood testing apparatus, in short everything which the doctor uses. One cannot afford to miss these demonstrations. Even when the exhibit does not directly concern one's special line of practice, he learns much which increases his value as a physician; he becomes a better man and a better practitioner.

Closely connected with the scientific exhibit one will find the display of new books, new journals, new monographs, everything new from the press which may be of benefit to the medical man. In this way one is able to keep himself in touch with the times, and the doctor who falls behind the times is soon irretrievably lost. No one finds this out quicker than his intelligent patients. The intelligent people of a community will appreciate the doctor's going to the meeting of the A.M.A. They will think he is likely to learn something there which will make him a more capable and efficient practitioner of medicine. The commercial exhibits are also of great interest. The medical man is never able to get entirely away from the manufacturers. He will see what the manufacturers of instruments and the manufacturers of medicines are doing. Besides these, there are displays of charts illustrating the work of preventive medicine, showing how this disease and that has been reduced, what measures have been taken, how to secure better water and better air. School hygiene is usually well illustrated and from these exhibits the doctor returns to his home with much which he may utilize in the prevention of disease. While credit for this comes slowly from the public, it is coming surely. No physician in Michigan can afford to miss the scientific sections, the scientific exhibits, the exhibits in preventive medicine work, even the commercial exhibits

which will be at his service at the meeting in Detroit in June.

There are many other reasons why the doctor should go to the meeting. He will meet with many friends, he will make many new friends, and from many of these he will learn more or less of value. He will see and hear men whose books and articles he has been reading for years, and in their presence he will be able to form a more just estimate of their real value. No one can live to himself alone, especially is this true of the practitioner of medicine. He cannot stand still intellectually. He either retrogrades or progresses, and in order to progress he must come in touch with the best that there is in the profession, and this he will find at the meeting of the American Medical Association.

There are still other important reasons why every medical man in Michigan should attend the A.M.A. meeting. The intelligent people in your community expect you to do so. They demand that their doctor should be up to the times, that he should be among the best, and that he should not become fossilized. I have no doubt that there are other reasons why every medical man in Michigan should attend the American Medical Association meeting, but it seems to me that any one of the above given should be sufficient. Let Michigan turn out *in toto*. Let every one of the three thousand or more physicians in the state meet with his fellows in Detroit in June and be rejuvenated, refreshed and a better doctor when he returns to his home.

V. C. Vaughan, Sr.

HONORABLE MENTION.

The collecting of the annual dues for membership devolves upon the County Secretary. The House of Delegates has enacted that all members whose annual dues are unpaid April 1st of each fiscal year, shall be suspended and remain suspended. The United States postal regulations are such that publications cannot be sent by second class mail to subscribers who are three months in arrears in their subscriptions. The House of Delegates has also enacted that members in suspension shall be without the protection of the Medical-Legal Committee. These regulations make it imperative that our members pay their annual dues promptly.

Doctors are woefully negligent of these regulations and so it happens every year that April 1st finds a goodly number who have failed to pay their dues for the current year and we have no alternative than to remove their names from the list of active members. Thus it also happens that each year several members apply for defense protection and on investigation it is found that the services for which suit is started was rendered during the period of the member's suspension and the Committee is compelled to refuse to defend the applicant. Every year some one or more pays such a penalty for his neglect.

County Secretaries spend a good deal of time and effort urging their members to pay their dues and even call on members in person. This work, this interest in their members frequently is overlooked and goes by unappreciated and unrewarded. Many members are indebted to their County Secretaries for this activity in collecting dues because in doing so these County Secretaries have protected the individual member's interest and prevented suspension.

It is but just and proper that acknowledgement be made of the services thus rendered by County Secretaries. The Editor is indeed pleased to publicly record that particular credit and honorable mention be made of the following County Secretaries, who, by their activities and interest, remitted *all the dues* of their members before April 1st.

Dr. A. F. Kingsley, Calhoun County.
Dr. F. J. Fralick, Montcalm County.
Dr. E. G. Sheffield, Bay County.
Dr. John H. Jones, Cass County.
Dr. Wm. Elliott, Delta County.
Dr. E. M. Highfield, Gratiot County.
Dr. C. R. Elwood, Menominee County.
Dr. E. J. Douglas, Midland County.
Dr. R. J. Beeby, O. M. C. O. R. O. Counties.
Dr. W. W. Arscott, Presque-Isle County.
Dr. D. W. Roos, Schoolcraft County.

The members of these Societies are deeply indebted to these efficient officers. Other Secretaries possibly have labored just as hard and earnestly but have been unrewarded for their labors by their unresponding members. They, too, are deserving of credit in like measure. They are undoubtedly disheartened and chagrined at the result of their efforts. They certainly merit credit and should be rewarded by the members of their society by prompt payment of current dues. In order that this may be accomplished we are publishing the names of County Societies, giving the number of members who have paid their dues and also the number of unpaid dues. We urge that those who are in arrears promptly cause their re-

instatement by remitting the required amount to your Secretary. County Secretaries cannot arrange profitable programs if their time is taken up in collecting dues. You owe your officer this co-operation.

APRIL 10, 1916.

County	No. Members in County	No. Members Paid
Alpena	16	13
A. C. E.	28	23
Barry	4	1
Bay	53	52
Benzie	5	3
Berrien	28	25
Branch	13	10
Calhoun	93	93
Cass	6	6
Cheboygan	6	2
Chippewa	28	19
Clinton	27	24
Delta	21	21
Dickinson-Iron	12	11
Eaton	37	33
Genesee	80	72
Gogebic	16	9
Grand Traverse	25	22
Gratiot	29	29
Hillsdale	21	10
Houghton	48	41
Huron	13	9
Ionia	19	15
Ingham	65	55
Isabella-Clare	15	9
Jackson	47	0
Kalamazoo Academy	143	136
Kent	152	104
Lapeer	23	23
Lenawee	36	23
Livingston	14	5
Macomb	30	24
Manistee	14	12
Marquette-Alger	39	36
Mason	9	7
Mecosta	18	17
Menominee	13	13
Midland	6	6
Monroe	24	21
Montcalm	29	29
Muskegon-Oceana	39	36
Newaygo	8	7
Oakland	48	45
O. M. C. O. R. O.	16	16
Ontonagon	9	7
Osceola-Lake	8	0
Ottawa	30	12
Presque Isle	3	3
Saginaw	63	33
Sanilac	17	13
Schoolcraft	6	6
Shiawassee	27	21
St. Clair	53	46
St. Joseph	14	13
Tri County	22	3
Tusocla	34	28
Washtenaw	75	67
Wayne	679	453

IF YOU ARE SUED.

Whenever a member is threatened with suit he should promptly pursue the following course: Consult with and place all the facts before your Representative of the Medico-Legal Committee. After so doing the local representative will promptly place the facts before the Chairman of the State Committee and that officer will direct and instruct what steps are to be taken. Do not engage any attorney until you have consulted with and been advised by the Chairman of the Medico-Legal Committee. The State Secretary has no jurisdiction; it causes nothing but delay to notify him, for upon receipt of such notice the letter is forwarded to the State Chairman.

If, perchance, a capias is issued then simply give bond and notify the Chairman of the Committee by telegraph.

The observance of the outlined precedure will facilitate the work of the Medico-Legal Committee. County Representatives are advised to promptly report every case that is presented to them.

MICHIGAN'S COMPENSATION ACT—THE PROFESSION'S OBLIGATION.

The provisions of our Workingmen's Compensation Act have been in force for a sufficient period of time to enable certain conclusions to be drawn from its enforcement. While as yet there does not exist a universal endorsement of the measure and the methods of administration, there has been in evidence on the whole a palpable sentiment that may be interpreted as an endorsement of this law. True, here and there, one will find ardent supporters as well as equally ardent denouncers of the Act. However, it must be conceded that the law of compensation for industrial injuries, as in force in Michigan, has been a distinct step in advancement in the solving of social problems.

We feel that whatever criticism does exist is not wholly justified because of the placing of this law on our statute books but rather because of the misinterpretation of its provisions and an arbitrary administration of its prescribing clauses. The law in itself is a most satisfactory one and while certain amendments may appear desirable at the present time, the law in itself is sufficient in accomplishing the desired ends that were sought for. As it now exists it can be made more effectual and productive of still greater benefits if certain conditions and reforms are instituted.

As intended, the law is providing for the employee a reasonable monetary remuneration for injuries, passing or permanent in their effect, that may be sustained in the course of employement. While the personal greed and visions of large monetary returns of certain individual employees are not satiated by the prescribed amounts of the law, the criticism of these employees are not worthy of even passing thought. However, the employees' criticism that the law does not do him justice in not providing for a longer period of surgical attendance, especially in fractures of the long bones, and in the failure of the law to not provide compensation at the end of one week of disability, may merit investigation.

Of course there are two sides to the question. It could be readily solved if the employee individually and collectively was absolutely honest and sincere in his claims and actions. As long as they are not and as long as they continue to take undue advantage of the Act just so long will there continue to exist a disagreement. There are on file many records of employees who have purely malignered and sought to secure that to which they were not entitled. It must also be admitted that to a certain extent the Industrial Board has been a party to such dishonest practices by being inclined to favor the employee unduly when questions of doubt as to facts existed. The Board has even arbitrarily over-ridden or ignored competent expert opinions, legal, technical and medical—and made rulings that are not compatible with scientific investigations and deductions. It is difficult to understand or explain the reasons that would cause the Board to assume such a dictatorial and empirical position. Until the employees and the Board demonstrate their desire to be impartially fair there is bound to continue an influential objection to increasing the benefits that the Act contains.

Thus far the right, privileges and benefits provided by this law have been enjoyed in a vastly greater degree by the employee and the surgeon and wholly out of proportion to the benefits that have accrued to the employer. In fact the employer has been denied most of his protection and has played the part of the "Goat."

The employer has been arbitrarily compelled to comply with rulings that were wholly unwarranted by facts, created by misstatements and erroneous interpretations. He has just cause for resisting any further legislation that seeks to place greater responsibilities and burdens on his business transactions. In fact within the past few weeks the employers of this state have perfected an organization to protect their interests in any attempt to increase their liability by industrial legislation. Until the employer receives impartial and fair consideration there cannot hopefully be looked for certain proposed amendments becoming law and the broadening of the scope of the law. As long as the employer is compelled to pay for a hernia that is congenital and has existed for years, for the loss of time that is prolonged by hereditary taint or constitutional infirmities, for failure on the part of the employee to cooperate to the extent of submitting to proper treatment, for the employee's attitude of prolonged alleged disability because his compensation provided by the law added to his insurance or lodge benefits equals the amount received when he was at work, for malignering and finally for a physician's errors in wrong diagnosis and improper treatment, just so long will there continue to exist a spirit of resentment and objection to the broadening of the provisions of the compensation law. The employers have just reasons for assuming an attitude of defense and protection.

It is incumbent upon the physicians of Michigan to aid in broadening the scope of the compensation law. They can best do so by correcting the abuses and criticisms that have been laid at their doors, and which criticisms are substantiated by recorded facts. The law provides for medical and surgical care for the injured or sick employee and places upon the employer the responsibility for paying for medical, surgical and hospital expenses. This provision has been taken undue advantage of by the profession and the following charges are made: Increasing the amount of doctor's bills by making unnecessary visits, dressings and performing unnecessary operations, the prolonging of the period of disability to the end of three weeks, amputating limbs or members that might have been conserved, sending patient to hospitals where the injury did not actually warrant hospital care, failure to give the proper treatment, aiding an unscrupulous employee in securing payment for benefits for permanent injuries that did not exist, perjured testimony and the rendering of exorbitant bills wholly out of proportion to the services rendered. Serious charges, we admit, nevertheless, the evidence is on file to warrant making them and being true, can we sincerely become indignant and blame the employer for making these charges?

Evidence exists, where physicians rendered

bills for twenty visits where the nature of the injury did not demand more than four or five visits. The cases have been "farmed" by certain doctors simply to pad bills and secure money from an employer whom they knew the law compelled to pay. Dressings have been made unnecessarily and repeated for prolonged periods when in reality they were not indicated. Visits have been made at the home and charged for where the patient was able to come to the office—the doctor having plenty of time on his hands and seeing a method of securing an extra fifty cents or dollar per dressing. Fingers have been amputated that might have been preserved, thus causing the employer to pay for the loss of a finger and increasing, without cause, the expenses. Certificates of disability have been given and testimony rendered when physical conditions did not present a solitary reason for such disability or loss of function. Physicians have endeavored and succeeded in collecting fees two, three and five times in excess of what has always been considered reasonable and ample. These and other instances of imposing upon and "holding up" the employer have caused the employer to compile data to demonstrate the method and manner in which the medical profession has sought to graft for the almighty dollar by sacrificing professional honesty, integrity and reputation for fair dealings. Serious charges they are indeed. They become more serious because they are true impeachments of our acts in rendering services prescribed by the compensation law.

What are we going to do about it? There will be those who will remain indifferent because they say they are not concerned, for in their work they do not have compensation cases. There are others who will deny the allegations because they have never perpetrated such offenses and have been square and honest in their every dealing—(yes, we are not all dishonest)—and these men will be loath to believe that there are those in the profession who would stoop to such practices. Then there are those who will rise up in an enforced attitude of apparent righteous indignation and set forth that what they have done is but right, that they are entitled to all they got, that they alone should be the judge of what their services are worth, that they alone know what care the employee needed, that they do not propose to be dictated to or have their services questioned, that they charge what they please and alone can establish the value of their services. It is this last class that is the causative factor in casting opprobrium upon the medical profession that has been advanced by the employer. It is that class of physicians that is causing the employers to organize to protect themselves and it is that class of physicians that is going to cause his honest, fair dealing fellow physician to eventually suffer. The employer is bound to accomplish the establishment of a plan or amendment that is going to afford him protection and we are fearful that the profession as a whole is going to suffer.

To lead up to the point of what is to be done we have thus briefly set forth a few of the existing conditions and submit the following suggestions for our readers discussion and consideration.

1. That our State Society set forth a reasonable and fair schedule of fees to govern services rendered in industrial accident cases.

2. That the State Society appoint an Arbitration Committee to whom a member may appeal for advice or opinion as to the reasonableness or unreasonableness of his bills that are questioned by an employer.

3. That the Society acquaint the Industrial Board and the Employers Association with the object of creating such a schedule and committee and assure them of our united willingness to correct abuses and to foster a frank honest plan of rendering service in those instances that are provided for by law.

Editorial Comments

Employers certainly have a right to question medical and surgical bills when rendered to them under the Compensation Act. They cannot be censored for questioning large fees when they find that the services rendered has entailed a long period of disability or permanent loss of function because by reason of improper care and faulty technic, infection was incurred; or, because a member was amputated that might have been saved. The employer is purchasing service and he has a right to pass upon and judge that service by the results obtained. Employers are keeping records of results and are reasonably able to state the results that should obtain. If the result in a given case does not meet up to the reasonable average they are within their rights when they raise the question of "below-par" service and skill. They cannot be condemned for refusing to pay first rate fees when they have only received second or third rate service. Employers are demanding, and rightly so, that doctors attending their employees shall exercise the full skill of a trained industrial surgeon. Industrial surgery is a definite specialty and has established statistical tables of normal results.

The Department of Agriculture, Washington has issued a valuable Farmer's Bulletin, No. 717 on "Food For Young Children." In it there is set forth the requisites for food for children between three and six years of age. Suggested bills of fare are presented and numerous recipes are imparted. Another Bulletin, No. 712 presents easily prepared menus for school luncheons. We recommend that interested readers write to the Office of Information, U. S. Dept. of Agriculture, Washington, for these two valuable pamphlets.

Board's of Health statistics during the next few years will be studied with interest to observe the progress of typhoid vaccination. Up to the present a number of studies have been made and the conclusions have been toward the endorsement of vaccination. The observations made in 100,000 cases establish the preventive powers of anti-typhoid vaccination. This practice of vaccination merits a universal adoption.

"There are errors which no wise man will treat with rudeness while there is a probability that they may be the refraction of some great truth still below the horizon. It is only an error of judgment to make a mistake, but it argues an infirmity of character to adhere to it when discovered. The Chinese say 'The glory is not in never falling, but in rising every time you fall.' To make no mistakes is not in the power of man; but from their errors and mistakes the wise and good learn wisdom for the future. Sometimes we may learn more from a man's errors, than from his virtues."

The attendance at the Detroit meeting of the American Medical Association promises to be the largest in the history of the organization. Are you planning to attend? Early hotel reservations are imperative.

The coming summer should cause every member to plan spending a definite amount of time in attending the national and state medical meetings and one or two weeks in the hospital and clinics of our medical centers. This is an absolute necessity if one wishes to remain abreast with the scientific progress of the profession.

The value of a peanut butter sandwich is equal in food value to a glass of cream. How many of the profession are aware of this fact and think to advise parents to incorporate this food in their recommendations of diets for underfed, poorly nourished and physically weak children or even adults? We recommend that you take notice of the advertisement in this issue and send for a sample to become personally acquainted with this palatable and nutritious food. From personal experience we can testify to its wholesomeness of nutritional qualities. It is a pure, unadulterated food in every sense —we have seen the process of manufacture. Lastly it affords another opportunity for patronizing our advertisers.

In children under two years of age intestinal toxemia is the commonest cause of fever. If the temperature falls and remains low under catharsis or starvation for twenty-four hours, the diagnosis is confirmed. If fever continues for three or four days, otitis media should be thought of even in the absence of aural or mastoid symptoms. A sustained high temperature of 103 or 104 in infants should always be treated as a lobar pneumonia until a definite diagnosis can be made. In a child three years of age free from the signs of pneumonia, continuous fever should lead to a tentative diagnosis of typhoid. The fever of tuberculosis is always characterized by the slight degree of accompanying discomfort. A remitting fever, persisting day after day without apparent cause, should always arouse a suspicion of pyelitis and lead to an examination of the urine. The October 2, 1915 issue of the *Lancet-Clinic* contains a most instructive article on "Obscure Fevers in Infancy and Childhood."

Open every skull subtemporally of every patient seen early with supposed unlocalized brain injury. The mortality rate will be greatly reduced if this dictum be followed. To delay courts a fatal termination.

Whenever you have a valuable paper or interesting case to report do not forget to send it to your *Journal*. If you can't find time to contribute your mite towards its success you are negligent of the duty and loyalty you owe to your publication. Let this sink in: The *Journal* is your publication, it reflects your enthusiasm, your ability, your professional standing. Are you doing your part to maintain or elevate its standard?

Certain of our county Societies have been hibernating this winter. We presume the cause has been inclement weather, bad roads and an overly busy season. With the summer at hand we look forward to a renewing of their activities and the reporting of their meetings in our County Society news columns.

The Tri-County Society on April 6 conducted a Hospital clinic with several operative cases, a program of several interesting papers, with the day closing with a banquet. Such a meeting has proven exceptionally profitable and interesting. It is recommended that other counties arrange for similar meetings. Muskegon-Oceana county already have plans underway for a District meeting. We will be pleased to learn of similar activities in other parts of the state.

If you fail to boost your county society and do not put personal effort and time in its work you cannot hope to receive the benefits of organized efforts. The mere payment of dues is not all sufficient.

DETROIT MEETING A. M. A.

I beg to advise that the American Association of Industrial Physicians and Surgeons will hold a meeting at the Hotel Cadillac on Monday, June 12. These physicians will, of course, stay through the American Medical Association meeting.

The American Academy of Medicine will convene in Detroit, June 9.

The American Association of Anesthetists will

convene on June 12, and stay through the entire meeting of the A.M.A.

The American Proctologic Society will hold their meeting on Monday and Tuesday, June 12 and 13.

We have been advised that a large party of the Chicago doctors have secured a boat, which will bring them to Detroit. They have arranged to sleep on the boat while they are here in attendance at the meeting.

We are handing you herewith a letter on hotel headquarters and meeting places. All Section and Alumni Dinners will be held on Tuesday evening, June 13. To date, Johns Hopkins, Rush Medical College, Harvard, George Washington University of Medicine, Washington University of St. Louis, University of Michigan, Detroit College of Medicine and Western Reserve School of Medicine have signified their intention of having dinners.

Section Dinners, which we have been advised on to date, will be given by the Sections on Obstetrics, Gynecology and Abdominal Surgery, Diseases of Children, Nervous and Mental Diseases, and Section on the Practice of Medicine.

The opening meeting of the Detroit Session will be held at the Lyceum Theatre Tuesday morning, June 13.

A General Public Meeting on Public Health will be held Friday afternoon, June 16, at the same Theatre.

In the line of entertainment we beg to advise that on Wednesday evening will be held the President's reception at the Hotel Statler, Thursday evening, Palais de Danse on East Jefferson Avenue has been engaged for a dancing party.

The steamer St. Claire has been chartered for the afternoon of Friday, the 16th, so that visitors may enjoy a lake ride. The boat will dock about five o'clock and leave again about seven for a moonlight boat ride. Dr. Torrey will hold a lawn fete for the ladies in attendance at the Convention on Wednesday evening, June 14. The Blackwell Society has also signified their intention of entertaining the ladies some afternoon during the week.

The Alpha Epsilon Iota Fraternity will maintain headquarters in Suite 712, No. 38 Adams Ave., West, during the week of the Convention.

The Convention Number of the *A. M. A. Journal* will be dated May 6. The larger part of the *Journal* will be devoted entirely to Convention news, information, etc.

It has been conceded by the Chicago officers that this meeting will be the largest in the history of the Association. Hotel reservations are being made in blocks of one hundred for parties coming here from different cities.

There will be something like two hundred commercial exhibits in connection with a very large scientific exhibition at the Detroit Light Guard Armory. General headquarters will be at the Hotel Statler. A.M.A. postoffice, Information Bureau, Registration Bureau and the Distribution of Tickets for Entertainments will all be at the Light Guard Armory.

The chairmen of the various committees are as follows:

Finance—Ernest W. Haass.
Entertainment—Arthur D. Holmes.
Registration—Frank B. Walker.
Printing and Publication—James H. Dempster.
Halls and Meeting Places—Frank B. Tibbals.
Scientific Exhibits—J. Walter Vaughan.
Commercial Exhibits—John N. Bell.
Hotels—Rolland Parmeter.
Automobiles—Angus McLean.
Information—Walter W. Manton.
Non-Affiliated Organizations—Guy L. Kiefer.
General Representative—Paul Tice.

The Local Hotel Committee has a system of reserving rooms at the hotels which insures accommodations for those making their reservations through the Committee. A triplicate card is made out, one copy going to the hotel, one copy sent to the party making the reservation, and one will be retained in the files of our office.

We would appreciate a notice to the effect that no more single reservations are available in any of the Detroit hotels for this meeting. It is necessary in all cases to double with a friend or fellow. Hotel reservations should be made through the A.M.A. Hotel Committee, No. 33 East High Street, Detroit, and all inquiries are promptly taken care of.

Trusting that with this information you will be in a position to give the matter some publicity, we are

Very truly yours,
ARRANGEMENTS COMMITTEE
PAUL TICE.

P. S.—Since dictating the above advice has been received that the Sections on Ophthalmology and Laryngology, Otology and Rhinology will be given a boat ride Tuesday evening, June 13, instead of a section dinner.

TRIP TO ANN ARBOR.

My Dear Doctor:

The Regents and the Faculty of the Medical School have invited the members of the American Medical Association and their ladies to visit the University Friday, June 16, and have appointed this day for a reunion of all former members of the Medical School. The following provisional program has been arranged.

Each of the members of the Medical Faculty will appoint an hour when he can be seen by his friends. From 10:30 to 12.00 there will be clinics and demonstrations at the hospitals. At 1:00 o'clock all will gather at the Barbour Gymnasium for a luncheon which will be provided by the Regents. In the afternoon the medical laboratories will be open and will have demonstrations.

A committee of the wives of the Medical Faculty will meet the ladies and conduct them to places of especial interest. All the museums and collections will be open. Automobile drives will be arranged for those who wish to visit the city.

At 3:00 o'clock there will be an organ recital in Hill Auditorium. Class meetings will be held at 4:00 o'clock. From 4:30 to 6:30 Doctor and Mrs. Vaughan will give a reception at their home. In the evening there will be class dinners arranged by many of the classes, and a general dinner for members of other classes and members of the Association who register for the same before Wednesday evening at the Detroit office.

I am sending this program to all our classmates.

I hope you may be able to attend the June meeting of the American Medical Association and go with us to Ann Arbor.

The Committee on Hotels request you to make early reservations, because the best rooms are being rapidly reserved. Send applications to

"HOTEL COMMITTEE,
33 High St., East.
Detroit, Mich."

SECTION	HOTEL HEADQUARTERS.	MEETING PLACE
Practice of Medicine	Pontchartrain	First Presbyterian Church
Surgery, General and Abdominal	Tuller	Woodward Ave. Baptist Church
Obstetrics, Gynec. and Obdom. Surg.	Statler	Woodward Ave. Baptist Institute
Ophthalmology	Statler	Statler Hotel
Laryngology, Otology and Rhinology	Statler	Statler Hotel
Diseases of Children	Addison	First Presbyterian Church
Pharmacology and Therapeutics	Tuller	Tuller Hotel
Pathology and Physiology	Tuller	Tuller Hotel
Stomatology	Ste. Claire	Pontchartrain
Nervous and Mental Diseases	Plaza	Y. M. C. A.
Dermatology	Pontchartrain	Pontchartrain
Preventive Med. and Public Health	Cadillac	Cadillac
Genito-Urinary Diseases	Pontchartrain	Pontchartrain
Hospitals	Charlevoix	Tuller Hotel
Orthopedic Surgery	Charlevoix	Baptist Church Institute
House of Delegates		Wayne County Med. Bldg.
GENERAL HEADQUARTERS	STATLER	
OPENING SESSION	LYCEUM THEATRE	

Deaths

IN MEMORIAM.

Since this Society last met Dr. Mason W. Gray has passed away. Death came at his home in Pontiac on April 13, 1915, after an illness of several month's duration from Addison's Disease. It seems fitting that the Oakland County Medical Society should spread upon its records some slight expression of our esteem for him and of our keen sense of loss, which we feel deeply.

Dr. Gray was born in Troy township, in Oakland county in 1855. He attended and graduated from the Michigan Agricultural College in 1877. The degree of M.D. was bestowed on him by the Medical Department of Michigan University in 1880. Then followed Post Graduate work in the University of Pennsylvania and a period of practice in the copper country of Northern Michigan, after which he chose Pontiac for his home and resided here for a third of a century, continuously ministering to the needs of this community.

Dr. Gray was active in organizing the Pontiac Medical Society and was its first President. He was a charter member of our own Society and President for one year. He was a member of the Michigan State Medical Society, of the American Medical Association, and of the American Public Health Association. He was appointed by the Governor as one of the State Board of Health and served one term. He also was elected and served as Mayor of Pontiac. In all these relationships he showed good judgment and discretion.

Perhaps he will be remembered most by his fellow associates in practice for his efforts to advance the cause of "organized medicine." He was always willing to use his time and strength in making plain the better way to advance the cause of scientific medicine; he was anxious to keep peace between the members of the Society; and he guarded carefully the interests of the profession. Well may we say that he was a devoted and unselfish friend, a sympathetic and wise counselor, and an honest man!

DR. W. MCCARROLL.

Dec. 14, 1915.

State News Notes

The institution that for forty years has been known at the Union Benevolent Home and Hospital (U. B. A.) in Grand Rapids has, on the dedication of its new hospital building changed its name to Blodgett Memorial Hospital. The change is made in honor of the donor of the new building who caused its erection in memory of his father.

Edward W. Lowe of Grand Rapids has completed the purchase of an entire block opposite the present Butterworth Hospital. Although no authoritative information has been imparted it is presumed that the purchase was made to provide a new site for the erection of a new hospital building. Mr. Lowe has for many years been interested in Butterworth Hospital, serving for many years as President of the Board of Trustees.

Reliable automobile liability insurance may be secured at much lessened rates by applying to the Michigan Automobile Owners' Association. Their "ad" appears in this issue. This insurance affords full protection and is the means of causing you the saving of several dollars in premiums. Write for detailed information.

The Class of 1904, Ann Arbor, will hold a reunion in Ann Arbor at the time of the A.M.A.

visit to the University. Dr. G. A. Seybold, Class Secretary, informs us that there are thirty-five members of the class of 1904 located in Michigan. Every member is expected to make the effort to be present. For full information and program, write to Dr. G. A. Seybold, Jackson, Mich.

The Committee on Transportation is considering the running of a special train to Houghton for our Fifty-first Annual Meeting. If the plan is adopted the sleepers will be parked in a suitable place so as to serve as sleeping quarters during the entire meeting. Details will be imparted in the June issue.

The next examination for admission to the Medical Corp of the Navy will be held in Washington, Boston, New York, Philadelphia and Chicago about June 16. For information write to the Surgeon General, U. S. Navy.

With the April issue, the *Military Surgeon* appears in very greatly enlarged form and improved appearance. It is practically a magazine *de luxe* and one may profitable include it in his readings.

President Hornbogen has appointed Dr. Alexander McKenzie of Port Huron to serve as Chairman of the Section on Surgery. Dr. McLean is unable to serve in that capacity.

Dr. Leo C. Connelly of Detroit sailed on April 8 for France, where he has secured a staff appointment in a French Base Hospital. The service is for six months.

The American Association of Railway Chief Surgeons met in Chicago, May 1st. Michigan has three representatives in that organization.

The Annual Commencement of the Medical Department of the University of Michigan will be held June 21.

The State Board of Registration in Medicine will hold its regular examinations in Detroit June 1, 2 and 3, and in Ann Arbor, June 19, 20 and 21.

Drs. C. G. Jennings and P. M. Hickey of Detroit addressed the Kent County Medical Society on the evening of April 12.

If you are planning to attend the A.M.A. meeting in Detroit and haven't reserved your rooms you had better do so at once.

Dr. A. P. Ohlmacher of Detroit has occupied new offices in the Kresge Building.

Dr. A. F. Kingsley of Battle Creek has been appointed health officer of Washington Heights.

Dr. Wilfred Haughey of Battle Creek is pursuing a special course of study in Harvard.

A Psychopathic Ward, a branch of the University Psychopathic Hospital, has been opened in the United Charities Building in Detroit.

D. R. H. Nichols of Bellaire has located in Holland.

Dr. A. G. Holliday has been appointed full time Health Officer for Traverse City.

A new hospital is being erected in Sault Ste. Marie at a cost of $50,000.

A new hospital for Marquette is announced by Dr. S. M. James. It will accommodate twenty patients.

The Annual Commencement Exercises of the Detroit College of Medicine will be held on June 8.

Dr. J. R. Hansen has located in Greenville.

County Society News

BAY COUNTY

The regular meeting of the Society took place March 13 at 4 p. m. A clinic was held at Mercy Hospital on Cardiac Diseases conducted by Dr. A. G. Hewlett of the University of Michigan. There were a large number of cases present. A number of Saginaw physicians were present.

At 6:30 this Society sat down to a well appointed dinner at the Elk's Club. Among our guests were Dr. Hewlett of the University of Michigan, Dr. Wm. DeKleine, Director of Tuberculosis Survey State Board of Health and some 20 members from Saginaw County Medical Society. In all fifty-eight physicians sat down to dine.

After dinner the meeting was called to order by President Grosjean. He introduced the speaker of the evening, A. G. Hewlett, Prof. of Medicine in the University of Michigan who gave an excellent discourse on "The Pacemaker of the Heart" illustrated by lantern slides. He refreshed our memories on the physiology of the heart and its application in diagnosing morbid states of the circulatory system in general. His paper was well received.

After a short discussion the meeting adjourned.

FRED S. BAIRD, Secretary.

CALHOUN COUNTY

In the meeting of March 21 the Calhoun County Medical Society departed somewhat from the regular order of program and invited in some business men from the city to address the members on various subjects. No business was transacted at this meeting, it being a purely social event, the doctors having an opportunity to observe how members of other professions looked upon our own. It proved a very pleasant and profitable meeting and we are glad to report something from each speaker.

Mr. W. I. Fell, of the Michigan Carton Company, read a paper exhibiting considerable thought and effort on his part. It was a very profitable paper and elsewhere we are pleased to publish the paper in full.

Attorney B. J. Onen followed, and warned the profession that as expert witnesses our efficiency is decreased by our own carelessness. He pointed out the legal aspect of certain situations, and warned the physician of his status under certain legal conditions.

Mr. W. J. Smith, Vice-President of the Old National Bank, was next introduced and gave a very excellent address from the standpoint of a financier. He related several anecdotes which were very pleasing and served to brighten the situation. Following this he gave an excellent discussion of bond issues and manufacturing enterprises as a means of private investment, pointing out the relative merits of each and warning physicians against investing in securities which are not well backed. Mr. Smith closed his address by paying a compliment to the Doctor's profession and expressed himself as follows:

"The Banker views the Doctor upon the highest plane of citizenship, for his profession is intrusted with the most sacred responsibilities of honor and character that enter the lives of men and women. He is with us at the dawn of our existence, and he will be standing sentinel when the dews of life's evening are gathering, and the shadows of the long night are falling around us. From the beginning to the end, from sunrise to sunset in human life we are conscious of our dependence upon him.

"We turn to him in our suffering and our helplessness; in the hour of despair and desolation. When faith and courage seem to have perished in the human breast, we look to him for one little ray of hope to bring back those who are near and dear to us that we may enjoy their affection, their love and comradeship, back again into this world of high aspirations, action and achievement.

"I can readily understand why the Doctor is drafted many times into the field of civic and political life. Who is better qualified to pass upon the complex problems that touch humanity on every side. His life work brings him into the closest touch with every phase of human experience from the heights of joy to the depths of tragedy.

"I appreciate the opportunity of discussing some of the interesting financial topics of the day in this presence, yet I am reluctant to dwell too long with questions that deal solely with dollars, as I am conscious of my obligations as a guest by the courtesy of men whose constant effort is dedicated to the cause of humanity.

"It gives me pleasure to express the greatest admiration for your profession which should always challenge the keenest appreciation of your fellow men. It gives me further satisfaction to say these things frankly as I am one of those who believes a 'rose for the living is better than sumptuous wreaths for the dead.' As I contemplate your work with mankind I am not unmindful of the sacrifice you are making for all that is best to upbuild the citizenship of our country. You are always listening for the call of duty; in the heat of summer and the cold of winter, in storm and clear, in sun or rain; in the turmoil and business strife of midday or in the silent midnight hour, the call of suffering brings additional test of your loyalty and devotion to the highest impulses in the heart of man.

"In the beautiful lines of Stuart Maclean we find a most fitting expression for the reward of your activities and work.

'My days are ships that put to sea
While in the dusk I silent stand
And watch them sailing far from me
To some unknown, far-distant land.

Into the dim and starless night,
Over an ocean gray and lone,
Onward they sail, nor left nor right,
Each with a cargo of its own.

I may not know till all is past
What port they make when over sea;
But this—I know that I at last
Shall find my ships awaiting me.

Then may I stand and smile at Death,
If I have sent in every one
A little love, a little faith,
A little deed of kindness done.'"

The program was closed by a talk by Mr. L. B. Anderson of the Advance Pump and Compressor Co., who offered certain words of criticism more or less founded upon fact. Some of these criticisms he said were based upon personal observations but on the whole, we were of the opinion that his observations had been made in the offices of osteopaths, chiropractors or some even more irregular practitioners.

The meeting closed with a buffet luncheon provided under the direction of the Entertainment Committee and was a most enjoyable affair in every way.

A. F. KINGSLEY, Secretary.

THE PHYSICIAN AND HIS RELATION TO THE PUBLIC.*

MR. W. I. FELL,
President of the Michigan Carton Co.

I feel highly honored, however, to receive the invitation to appear before this august body of learned and intelligent men, assembling here from all parts of one of the best counties—in the best state—of the unquestionably best nation in the world, banded together for a purpose—the building up of the health of the unfortunate—the tearing down of the old and diseased tissues, and replacing same with new, that the afflicted ones may become well and strong, better enabling them to go about their work and to better provide for themselves and their dear ones.

This getting together once a month is, in my opinion one of the most charitable acts that can be offered by any association, charities club, or fraternal organization. Why? Because you meet month after month, year after year, and for just one purpose, and that to exchange experience and talk matters over, all for the building up of the broken down in health. Do business men do this? Oh, yes, they have their associations and they get together, but if they think they have a way of doing things a little better or cheaper than the other fellow they keep that under their hats. They don't care to invite competition with that new discovery. So unlike the doctor.

*Read at the meeting of the Calhoun County Medical Society March 21, held in the Chamber of Commerce Rooms, Battle Creek.

Is the doctor likable? Well, to analyze this I will first go back to my own family, who claim kin to the once noted Doctor Fell, who was the target for the old familiar verse which I will quote,

"I do not like you, Doctor Fell,
The reason why I cannot tell;
But I do not like you, Doctor Fell."

The very fact that the author of this verse admitted the reason why he could not tell, is absolute proof that he loved the doctor. If you don't like a person there is a reason, and you can locate the reason every time if you want to. Why shouldn't we love the doctor? He is the first to take us into his grasp when we come into this world, and he is the one person who stays by us until the last breath is gone, and our spirit has departed to that Great Beyond.

The Doctor as a Philanthropist.—In this one thing, if in no other, the medical profession leads. In the first place, a large percentage of their daily labor is purely charity, and they realize it, too, before they accept the call, but they go just the same. Their charity work, however, is not confined to their skill and services alone, not by any means. When necessary they go deep down into their pockets and pull up the long green. I know from whence I speak, for I recently attended a club meeting where a request was made to raise funds to extend the services of a visiting nurse who was doing wonderfully good work among the poor and needy of the city. Then and there, at that little gathering, over $300 was subscribed, and I noticed that each of several doctors dug up amounts equal to that subscribed by large and wealthy corporations. Any personal motive there? I think not. This nurse will surely dig up more charitable work for the doctors, so they get touched both going and coming.

And let me add right here; is there any better way to build up and beautify our towns and cities than to send visiting nurses to the homes of poor families? I have said it before, and I repeat, that the home surroundings is the key to the cleaning up and beautifying of the city. Cleanliness is contagious as well as is disease. If we want healthy men and women we must have healthy boys and girls. The boys and girls of today are the men and women of tomorrow. If we help their home surroundings and encourage them to be neat and tidy, we are doing just that much toward beautifying and cleaning up our cities. Therefore, I maintain that the doctors can do, and are doing, more for the movement of race betterment than any other class of either business or professional men.

I recently had occasion to visit the Municipal Hospital located in the city of Philadelphia, used exclusively for contagious diseases. It was my pleasure while there to meet Dr. Buckingham, General Superintendent of the institution. I was visiting one day with the doctor in his office, and asked him a great many questions about their buildings, grounds and system. I found him a very congenial gentleman. He knew I was from Michigan, and said, "Mr. Fell, if you have an hour or so to spend, I would like to take you through our plant." He added, "You seem to be more interested in this institution than most of the people who belong in Philadelphia, as you asked me more questions about it since you were here than I was ever asked by any of our own citizens."

He first showed me the plant, stating that he and two architects made several trips to Europe, spending months there studying sanitary conditions in hospitals for contagious diseases.

The grounds cover sixty-three acres. The buildings for the different diseases are segregated so that there is no danger of a person taking one disease when convalescing from another. They have an open air veranda one thousand feet long for the nurses to promenade and wheel their patients when out for airing. In the winter this veranda can be enclosed, or partly enclosed, as weather conditions require. Under the buildings leading from the power plant are passage ways where the workmen, such as plumbers, steamfitters and repair men can pass from one building to another without coming in contact with disease. When the buildings that are now in the course of erection are finished, there will be an expenditure of two and a half millions of dollars. Dr. Buckingham tells me that the grounds, buildings, plant equipment, and everything pertaining to the hospital was laid out in accordance with his ideas. I assure you the lesson I learned while in conversation with Dr. Buckingham was very beneficial. I believe there are very few business men in this country who could handle matters in a more systematic way than did the Doctor.

It was with much difficulty that I was granted an interview with Dr. Irwin, who is at the head of the Health and Charities Department of Philadelphia, and it was only made possible by a letter of introduction from Mayor Blankenberg. When I got to the Doctor's office people were lined up twenty deep, waiting to get in, and I thought to myself if I do get to the Doctor he will be so busy that he will not be able to give me a minute of his time. My letter, however, helped a great deal, and I was ushered in ahead of about twenty others. When I did meet the Doctor I was shown all the courtesy possible. He said there was no hurry, and to take my time when I began to edge away. I reminded him that there were about twenty waiting for him in the outer office. He replied that if that was all it was easy; sometimes there were fifty to seventy-five. When I left I could not help but think of the amount of business Dr. Irwin is doing, as compared with the average business man. Probably the ratio might be ten to one, as yet I believe he was of that make-up that everyone went from his office satisfied.

There occurs to me several notable examples which will recur to the minds of all of you as I mention names. For instance, Dr. Oliver Wendell Holmes, who aside from being a professor of anatomy and physiology in Harvard Medical School, was more in demand as a lyceum lecturer for years. It is not so well known that for forty years he was pastor of the First Church in Cambridge. He is best known to us because of some of his poems, which have lasted down to today; poems like "Old Ironsides," and "The Last Leaf."

Then we think more lately of Sir Conan Doyle, the creator of Sherlock Holmes, who for years was a practicing physician, deserting it for literature in his maturer years.

Dr. S. Weir Mitchell, who, greatly famous as a

medical author, certainly found greater favoritism in the field of novelism, with numerous essays, poems and novels to his credit.

In Politics, members of the medical profession have been quite prominent. Dr. Pardee, who became Governor of California some fifteen years ago, and Dr. Jacob H. Gallinger, who has been Senior United States Senator from New Hampshire for many years. The House of Representatives has always had many physicians upon its roster.

In the Domain of Finance, we can mention Dr. W. Seward Webb, seldom thought of as a physician, yet after graduating in medicine in New York and Vienna deserted the profession and became best known as the manager of the Wagner Palace Car Co. He was a director in many of the great railroad companies of the country, through his connection by marriage with the late Wm. H. Vanderbilt, having married Mr. Vanderbilt's daughter.

As Publicists, the profession has always been prominent. We read editorials by Dr. Frank Crane, and always think of him as a Doctor of Divinity. He was first a physician; then ordained to the clergy, and in his later years was prominent as a publicist and lecturer.

We are familiar with other writers, such as Dr. Woods Hutchinson, who we hear of through the columns of the *Saturday Evening Post* and other standard magazines.

Certainly Dr. Harvey W. Wiley reached great fame as the director of the Bureau of Chemistry of the United States Department of Agriculture. Without much question he put the Pure Food subject before the public in a fixed, hard way that it has never forgotten, and will not forget. In doing that he was getting outside of strictly professional matters, and did a world of good. Since leaving his official position he, like Dr. Goudiss of the *Forecast Magazine,* has continued the propaganda of Pure Foods and their relation to good health, and his name is a household word.

General Leonard Wood, Commanding General of (what army we have), was originally in the service, in his staff position as Regimental Surgeon. Through bravery in Western Indian fighting he jumped the barrier from staff to the line, and became through rapid promotion the ranking general officer of the company, absolutely forgetting and leaving behind him his profession, so far as life's duties were concerned.

Then there is Dr. Cook, of North Pole fame. As the years go on he seems to be less of a joke, and it may be that another generation might further advance his contentions. He then is a physician who at least made himself prominent in the field of exploration.

Statistics show that less than 50 per cent. of the medical college graduates follow the profession. We wonder sometimes what becomes of the other half, and whether or not their medical education is of any assistance to them in the vocation they have selected. And this reminds me that we have in Battle Creek one such doctor, who graduated with high honors from Columbia University, and I am sure that if he had followed the profession he would have been equally as keen, thorough and pleasing in his practice as he now is in the work to which he was called. And without his medical education he could not have been so successful at the new work. He is now writing advertisements for one of the largest advertisers in the country; his ads are read by millions, and it costs more than a million dollars annually to insert them. His knowledge of medicine and ethics enables him to write an "ad" that will keep clear of the odor of any patent medicine or quack advertiser, and still appeal to the person who is looking for a change of diet. The doctor referred to is none other than Dr. Charles W. Green, who is employed by the Postum Cereal Co.

And in getting down to the more material and intimate side of our local life, let us consider the physicians, who, without deserting their practice, have held the position of Mayor in our home city, namely, Doctors Cox, French, Gillette and Zelinsky, who served well in our council and in the management of the affairs of our city, and did much credit to themselves.

Doctors as Farmers.—As a common, ordinary David Harum, we have a doctor who has no peer. It is only a few years ago that he purchased a sand pile about three miles east of town, paying three thousand dollars for it. Everyone laughed at him for making the purchase, telling him that a warranty deed would not hold, and he would have to use a chattel mortgage so he could go into the next county after every wind-storm, foreclose, and bring back his pile of sand. This talk, however, did not faze the Doctor. He waited his chance, till one day an exceptionally shrewd real estate dealer came along. The Doctor unloaded his pile of sand for seven thousand dollars, and after telling "Yours Truly" what he had done, wanted to know what I thought of his deal. I told him he ought to be ashamed of himself and should return at least one-half of the sale price. He told me later that he did feel a little guilty over the matter, and had voluntarily made a concession. It appears that in the original transfer of the sand pile, the Doctor reserved the right to cross the back end of the place and fish in a trout brook. This privilege he personally valued at $500, so in order to give the real estate man a clearer title he waived his fishing right for $250. The Doctor is present, so it won't do to mention his name. Also he is a good neighbor of mine, but very peculiar in his practice. Won't give you one bit of attention if your ailment is below the chin; puffed up considerably lately—daddy of a forty pound boy. "Namely" his make-up is hard—a school boy could write on either side of him. Sleight.

The doctors of Battle Creek have got the bug for this farming business, the latest combination being the Shipp-Elliott Syndicate. They have a large preserve near St. Mary's Lake. Dr. Elliott is the scientific end of the combination, and Dr. Shipp the practical. They recently bought a very blooded cow. Had it shipped in from New York State. As soon as it arrived and was delivered to the farm, they of course were very anvious to inspect the cow. Dr. Elliott got up early next morning, called up Dr. Shipp, and asked him to go out to see the cow. Dr. Shipp reluctantly declined, having some professional calls to make that morning, So Dr. Elliott went out alone. The care-taker had placed the cow in one of the stalls in the barn. Dr. Elliott, not knowing which side of a cow it is customary to approach at milking time went in on

the left, put his hand on the cow's rump, and said, "Hoist." She did. With a stiff kick she hoisted him out of the stable. He got up, brushed himself off, got into his car and drove straight to town, and went immediately to Dr. Shipp's office. The Doctor was in, anxious of course to know what Dr. Elliott thought of the new cow, and of course asked the question, "How is she, Doctor?" "Right up-to-date," replied Dr. Elliott, "she's a self-starter and a left-hand drive."

The Physician as a Sportsman.—You find him in the field and woods with dog and gun, on the lake and along the stream with rod and reel, on the golf links, on the tennis courts, at the ball game, at the races, in the theater, and most all places of amusement. But he is not there enough, is too intent upon his practice and looking after the health of others, so really neglects his own health.

What I have had to say in the brief space of time allotted me are simply personal observations of the physician as I have met him from time to time, both professionally and socially, and not from any deep thought or study, but related in a simple way such as you might expect from a business man not accustomed to speaking in public.

LAPEER COUNTY

The Lapeer County Society met at the Hotel Elaine, Lapeer, on Tuesday April 11, 1916 and it proved to be a very profitable meeting in many ways, although the attendance was mostly limited to members of the city on account of the very bad roads and railroad connections.

We were highly honored with the presence of Dr. C. M. Stafford of Detroit and Dr. J. G. R. Manwaring of Flint. The former gave us a very instructive paper on the Rational Use of Vaccine while the latter gave a fine discussion on the Cancer problem. Both papers were fully discussed and many helpful hints given to members of the Society.

It was voted that our County Society would hold meetings once each month from April to November instead of every three months, and to have one or two out of town speakers for each meeting.

The next will be held at Almont on Tuesday, May 9, 1916, and the Tri County Society have been invited to this meeting in order to help make it more interesting for each society.

Our speakers for the next meeting are Drs. J. H. Carstens and Chas. W. Hitchcock of Detroit and Dr W. J. Kay of Lapeer, each of which being well versed in medicine should make a program well worth going miles to hear.

A measle epidemic in the county is keeping most of the physicians very busy but it is to be hoped that this will not last long enough to detain any members from attending the Almont meeting.

The new $35,000.00 Hospital at the Michigan Home and Training School at Lapeer has just been completed and is one of the finest hospitals in the State.

It is being rapidly filled with patients who will be much better cared for in a building of this kind than in cottages. Much credit is due to Dr. H. A. Haynes the Superintendent in being fortunate enough to get such a fine building, to take care of Michigan's unfortunate children.

J. H. DOUGLASS, Secretary.

ST. CLAIR COUNTY

The regular meeting of the St. Clair County Medical Society was held Thursday evening March 30, 1916, at the Harrington Hotel, Dr. Case of Battle Creek being the guest of the evening. After dinner the meeting was called to order by the President, Dr. McKenzie, who introduced Dr. Case of Battle Creek. His subject being "Differential Diagnoses of Upper Quadrant Lesions with Reference to the X-ray." His subject was very interesting and appreciated by all.

Dr. Frank V. Carney was elected a member of the Society.

Twenty-five members were present at the meeting.

TRI COUNTY

"The clinic April 12, was one of the best we have ever had in Cadillac," said a local physician this morning. "It began at 1:00 o'clock at Mercy Hospital and there wasn't a dull moment from that time."

Seventeen physicians and surgeons, including eight from out of the city, attended the clinic.. Dr. E. K. Cullen performed four operations at the hospital in the afternoon, all those operated on being from out of the city. The operations were of great interest and unusual value to those present.

Following the operations, the Sisters served the doctors a light lunch at the hospital. At 6:30 the physicians gathered at the hotel for a dinner and later went to the county building where an interesting program was given. Dr. Cullen lectured and made a plea for an early diagnosis of cancer.

Out of town doctors who attended included E. K. Cullen of Detroit, E. B. Babcock and A. G. Burwell of Kalkaska, S. E. Neihardt of South Boardman, D. F. Huntley of Manton, J. H. Barnard of Tustin, John Gruber of Mesick, and F. W. Dorr of Jennings.

O. L. RICKER, Secretary.

Book Reviews

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume V. Number I (February, 1916). Octavo of 194 pages, 33 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Published Bi-Monthly. Price per year: Paper, $8.00. Cloth, $12.00.

The usual standard prevails.

GOULD'S PRACTITIONER'S MEDICAL DICTIONARY. Third Edison, Revised and Edited by R. J. E. Scott, M.A., B.C.L., M.D., of New York. XX. 962 pages. Flexible cloth, round corners, Marbled edges. $2.75.

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Height, 8¾ inches; Width, 6¼ inches; Thickness, 1¼ inches.

Price $2.75 in Cloth.

THE PRINCIPLES AND PRACTICE OF PERIMETRY. By Luther C. Peter, A.M., M.D., F.A.C.S. Associate Professor of Ophthalmology, Philadelphia Polyclinic and College for Graduates in Medicine; Ophthalmologist to the Rush Hospital for Consumption and Allied Diseases. 232 pages, with 119 illustrations. Cloth, $2.50 net. Lea & Febiger, Publishers. Philadelphia and New York.

A few outstanding facts regarding this new work are worthy of attention. It is the first book in the English language, so far as is known, devoted entirely to the subject of Perimetry. The needs for such a work are urgent because text-books do not deal with the fundamentals of perimetry and its principles, but confine themselves largely to the clinical findings in individual diseases. The student therefore has nothing to guide him in the taking of fields and the general pathology of fields.

The progress of the science of ophthalmology and the development of post graduate teaching have awakened new interest in perimetry as a refinement in diagnosis and a necessity in many obscure brain conditions. The allied branches of brain surgery, neurology and rhinology are demanding more careful study in perimetry in the brain conditions in which perimetry is essential for a diagnosis. This book will be found particularly valuable not only to the specialist in ophthalmology but to the physician or internist who owing to the great interest manifested in perimetry today is expected to make perimetric studies.

VENEREAL DISEASES. A Manual for Students and Practitioners. By James R. Hayden, M.D., F.A.C.S., Professor of Urology at the College of Physicians and Surgeons, Columbia University, New York; Visiting Genito-Urinary Surgeon Bellevue Hospital; Consulting Genito-Urinary Surgeon to to St. Joseph's Hospital, Yonkers, New York. 12mo., 365 pages, with 133 illustrations. Cloth, $2.50 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

The fact that Hayden's work on venereal diseases has passed through three revisions since it first appeared is in itself sufficient evidence of its popularity and merit. The new fourth edition will undoubtedly maintain the reputation of its predecessors. It has been carefully revised and considerably enlarged. The subject matter has been brought fully up-to-date and the addition of numerous illustrations, for the most part showing the author's own cases and methods of treatment, has greatly enhanced the value and interest of the work.

Dr. Hayden covers the subject of venereal diseases in a very clear and concise manner. Of the thirty-six chapters in this book he devotes eighteen to the discussion of *Syphilis* in all its phases, giving explicit directions both as to diagnosis and treatment. Nine chapters are given to the discussion of *Gonorrhea* and nine other forms of venereal diseases. This allotment of space is in proportion to the importance and significance of the subject matter.

The general practitioner will find in Hayden adequate guidance for the care and treatment of any form of venereal infection which he may meet in practice; the student of medicine will find in this book a clear and precise presentation of accepted facts and proven practice; the specialist will find it valuable as a manual for ready reference.

PULMONARY TUBERCULOSIS. By Maurice Fishberg, M.D., Clinical Professor of Tuberculosis, University of Bellevue Hospital Medical College; Attending Physician, Montefiore Home and Hospital for Chronic Diseases, New York. Octavo, 639 pages, with 91 engravings and 18 plates. Cloth, $5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

It is essential that the physician in general practice, who is frequently called upon to treat pulmonary tuberculosis, should have at hand a work which will give him not only the etiology of the disease, but also the methods of treatment best adapted to the needs of the individual case and the conditions under which that treatment must be given to secure the best results and to expedite an ultimate recovery. Such a work has been prepared by Dr. Fishberg, whose wide experience as a specialist, practicing in the most congested city of America, and as a teacher of this subject in the University and Bellevue Hospital Medical College of New York, has given him a comprehensive grasp of the general practitioner's needs. His ability to meet these needs and present them in useful form is evident in every page of his book. It is at once completely authoritative and intensely practical.

At least 90 per cent. of tuberculosis patients must be cared for in their homes, not alone because of the inadequacy of institutional accommodations, but also because most patients can thus be cared for at less expense to themselves and to the community. Treatment in the home, however, may be fraught with imminent dangers not only to the patient but to other members of the household, unless the right methods are employed and proper precautions against infection are taken. Ideal as institutional treatment is in many cases, sanitarium methods cannot be applied in their entirety to patients who are not under the strict supervision and discipline prevailing in institutions.

The treatment of pulmonary tuberculosis presented in this book is based on the author's experience with patients in New York City. Some of them are inmates of institutions, but even these had to be cared for before admission and after their discharge. Emphasis is laid on the fact that in most cases the patient can be given the benefit of rest, fresh air and proper food in his home as well as in a sanitarium. The immense utility of sanitarium treatment is emphasized, but its limitations are carefully enumerated. Medicinal treatment has not been neg-

lected because it is in many cases of more value than some have been inclined to think. The most recent method of treatment, artificial pneumothorax, has been given in detail because of its efficiency in cases where everything else has failed. Dr. Fishberg has carefully studied the literature and has presented the facts as established by leading modern observers and investigators, co-ordinating, elucidating and supplementing the knowledge thus assembled with the results of his own specialized private and hospital practice. The result is a work which makes clear the problems encountered in the treatment of pulmonary tuberculosis and supplies the student with the basic knowledge essential to the successful handling of this disease. The usefulness of this work to the general practitioner can hardly be overestimated.

THE BASIS OF SYMPTOMS. The principles of Clinical Pathology. By Rudolph Krehl, Director of the Medical Clinics at Heidelberg, translated by Arthur F. Beifeld, M.D., with introduction by A. W. Hewlett, M.D. Professor of Internal Medicine, University of Michigan. Third American Edition. Cloth, 517 pages. Price $5.00. J. P. Lippincott Company, Philadelphia, Pa.

If one wishes to know the scientific basis of medicine he must possess this work. The author interprets the various pictures observed in his clinic from the standpoint of disturbed physiology. The different chapters are concerned with a consideration of the behavior of correlated organs under the influence of disturbed function. The author claims this to be essential in order to understand disease processes and how to determine the effect that disturbed coordination of different organs has upon the individual as a whole. Our interest in the scientific side of disease is stimulated and made practical by a close study of the writer's observations and deductions.

This Third American Edition will be sought for by every studious practitioner. It is a necessity for every clinician and progressive practitioner. We commend and admire it most unreservedly.

INTERNATIONAL CLINICS: A quarterly of illustrated clinical lectures and especially prepared original articles. Edited by H. R. Landes and staff of Associates. Volume I. XXVI. Series, 1916. J. P. Lipponcitt Company, Philadelphia, Pa. Price $2.00.

This issue is devoted to Therapy, Medicine Neurology, Public Health, Pathology, Gynecology and Surgery. Under each sub heading there will be found excellent articles that are well worth preserving and re-reading. In fact this issue may be judged as composed of nothing but what is timely, instructive and to the point of the subject discussed.

The series continues to maintain a high standard. It is particularly indicated by this volume. We have yet to be disappointed.

STUDIES IN ETHICS FOR NURSES. By Charlotte A. Aikens, Author of Hospital Management, Primary Studies for Nurses and Clinical Studies for Nurses, etc. 12mo of 320 pages. Philadelphia and London. W. B. Saunders Company, 1916. Cloth, $1.75 net.

The author endeavors to call attention to the need of the careful teaching of ethics and the observance of nursing ethics. The volume emphasizes the importance of the subject. It is a most excellent volume and every nurse, either in training or having graduated may read and re-read it with profit. She is bound to become a better nurse for having done so. The work merits a place on the reading table of every training school. Many doctors will find it to their profit to carefully read the entire volume and ponder over the excellent principles that are advanced. On the whole it is a timely monograph.

Miscellany

DO YOU KNOW THAT

Sags in roof-gutters may act as mosquito breeding places?

America's most valuable crop is babies?

The public cigar-cutter is a health menace?

The United States Public Health Service maintains a loan library of stereopticon slides?

The typhoid rate measures accurately community intelligence?

Whooping cough annually kills over ten thousand Americans?

Bad housing produces bad health?

Rocky Mountain spotted fever is spread by a wood-tick?

ALCOHOL AND PNEUMONIA.

The United States Public Health Service brands strong drink as the most efficient ally of pneumonia. It declares that alcohol is the handmaiden of the disease which produces 10 per cent .of the deaths in the United States. This is no exaggeration. We have known for a long time that indulgence in alcoholic liquors lowers the individual vitality, and that the man who drinks is peculiarly susceptible to pneumonia. The United States Public Health Service is a conservative body. It does not engage in alarmist propaganda. In following out the line of its official duties it has brought forcefully to the general public a fact which will bear endless repetition. The liberal and continuous user of alcoholic drinks will do well to heed this warning, particularly at this season of the year when the gruesome death toll from pneumonia is being doubled.

Digitalysatum.—Digitalysatum, according to the Ernst Bischoff Co., Inc., is the dialyzed juice of fresh digitalis physiologically standardized and containing 12 per cent. alcohol. Sterisol-Digitalysatum appears to be the dialysate without alcohol diluted with equal parts of physiologic salt solution. The preparations are advertised with claims which imply superiority to all other digitalis preparations. The Council on Pharmacy and Chemistry holds that attempts to create the impression that Digitalysatum possesses all the virtues of digitalis without its chief disadvantage are to be condemned as likely to lead to incautious use of the preparation. The Council therefore declared Digitalysatum ineligible for New and Nonofficial Remedies (*Jour. A.M.A.*, Jan. 8, 1916, p. 135).

ADDITIONAL REGISTRATION IN MICHIGAN THROUGH INTERSTATE ENDORSEMENT

Name and Address.	College.	Qual.	State.	Date.
Boston, Harry Prewitt Detroit, Mich.	Wash. Univ. Med. School, St. Louis, Mo., 1907.	I.	Missouri.	Jan. 22, 1916.
Schlesinger, Henry, Detroit, Mich.	Baltimore Med. Col., Baltimore, Md., 1913.	I.	Penn.	Dec. 15, 1915.
Warrick, W. Carleton, Detroit, Mich.	Univ. of Illinois, Col. of Med., 1914.	I.	Ill.	Dec. 29, 1915.
Condit, Lannes Irving, Detroit, Mich.	Marquette Univ. School of Med., Wis., 1912.	I.	Wash.	Dec. 29, 1915.
Tolman, George Averill, Detroit, Mich.	Medical School of Maine, 1893.	II.	New Hamp.	Dec. 29, 1915.
Weinberger, Aaron Vida, Detroit, Mich.	Univ. of Louisville, Med. Dept., Ky., 1912.	I.	West Va.	Jan. 3, 1916.
Cunningham, Claude P. H., Detroit, Mich.	Howard Univ. Med. Col., Wash., D. C., 1907.	I.	Penn.	Jan. 4, 1916.
Morison, Garnett P., Sturgis, Mich.	Chicago Col. of Med., Surg., Ill., 1914.	I.	Ill.	Jan. 7, 1916.
Dwyer, Frank, Detroit, Mich.	Baltimore Col. of Phys. and Surg., 1915.	I.	West Va.	Jan. 12, 1916.
Welch, Rolland Aretus, Battle Creek, Mich.	Col. of Med., Univ. of Ill., 1915.	I.	Ill.	Jan. 12, 1916.
Wall, Joseph Amplias, Detroit, Mich.	Jefferson Med. College, Penn., 1912.	I.	Missouri.	Jan. 18, 1916.
Woods, Herbert Brown, Detroit, Mich.	Univ. of Toronto, Canada, 1907.	I.	Idaho.	Jan. 22, 1916.
Brengle, Deane Rockhold, Detroit, Mich.	Univ. of Ill., Col. of Med., 1914.	I.	Ill.	Jan. 24, 1916.
Breakey, James Ritchison, Ypsilanti, Mich.	Dept. of Med. and Surg., Univ. of Mich., 1889.	II.	Wis.	Jan. 27, 1916.
Flinn, Charles Chandler, Bravo, Mich.	Bennett Med. College, Chicago, Ill., 1901.	I.	Ill.	Jan. 27, 1916.
Gardner, Frank Frederick, Detroit, Mich.	Rush Med. College, Illinois, 1911.	I.	Ill.	Feb. 3, 1916.
Haven, William Walter, Pontiac, Mich.	Barnes Med. Col., St. Louis, Mo., 1908.	I.	Ill.	Feb. 7, 1916.
Dillman, Theodore Albert, Ann Arbor, Mich.	Dept. of Med. and Surg., Univ. of Mich., 1908.	I.	Ohio.	Feb. 9, 1916.
Iber, Charles Henry I., Detroit, Mich.	Miami Med. Col., Cincinnati, O., 1908.	I.	Ohio.	Feb. 15, 1916.
Linger, Earl Albert, Rockland, Mich.	Rush Med. College, Chicago, Ill., 1914.	I.	Ill.	Feb. 21, 1916.
Smith, Gerrit, Calvin, Detroit, Mich.	Detroit Col. of Med., Detroit, Mich., 1910.	I.	Ill.	Feb. 25, 1916.
Boland, Lucy Elizabeth, Ann Arbor, Mich.	Woman's Med. Col. of Penn., 1914.	I.	Penn.	Feb. 25, 1916.
Smith, Frederick Janney, Detroit, Mich.	Johns Hopkins Med. School, Baltimore, Md., 1913.	I.	Md.	March 1, 1916.
Painter, Theodore P., Detroit, Mich.	Jefferson Med. College, Penn., 1887.	II.	Penn.	March 3, 1916.
Williams, Mildred C., Detroit, Mich.	Univ., of Nebraska, Col. of Med., 1914.	I.	Neb.	March 3, 1916.